

# PAINT and VARNISH *Production*

THE TECHNICAL MAGAZINE FOR MANUFACTURERS OF PAINT, VARNISH, LACQUER AND OTHER SYNTHETIC FINISHES

Vol. 1, No. 2

## Advance Info <sup>A</sup>

Published by **ADVANCE SOLVENTS & CHEMICAL CORP.**

### NEW ZIRCONIUM COMPLEX CHALLENGES DRIER FORMULATIONS

**Advance Zirco Drier Catalyst\* Activates Conventional Driers, Reduces Costs**

New developments, the fruits of years of intensive research by Advance Solvents & Chemical Corporation, into metals not previously used as driers, promise to revolutionize drier formulations in the protective coatings industry.

One of these outstanding new products is **ADVANCE ZIRCO DRIER CATALYST 6%**, a zirconium organic complex in mineral spirits solution (zirconium content standardized at 6%). Not a drier in itself, ZIRCO activates and enhances the effect of primary driers, such as cobalt and manganese.

Proven in actual production use, Advance ZIRCO Drier Catalyst 6% offers the substantial advantages, in many cases at lower cost, of better through dry, improved hardness, fume-proofness, non-toxicity\*\*, higher gloss and reduction of drier adsorption.

By its synergistic action on other driers, ZIRCO enhances their activity. This is clearly demonstrated in formu-

lations where part of the primary drier is replaced by ZIRCO. Such combinations as ZIRCO-Cobalt, ZIRCO-Manganese, ZIRCO-Cobalt-Manganese, give equal drying time, a better through dry, far superior hardness without embrittlement, better color and a substantial reduction in drier adsorption.

ZIRCO is unique in its action as, in combination with primary driers, it acts as a primary drier itself. On the other hand, it can completely replace secondary driers such as lead.

This new concept in drier formulations opens considerable opportunities to the protective coatings industry. Advance ZIRCO Drier Catalyst 6% is outstanding in industrial finishes (air and force dry), trade sales, outside white and fume-proof paints, alkyd enamels, soft oils, aluminum paints, non-toxic paints, etc.

\*Patents Pending.

\*\*Zirconium metal is considered to be non-toxic, and we believe this catalyst, because of its chemical structure, is non-toxic, although no warranties are made in this respect.

### RARE EARTH DEVELOPMENTS FROM ADVANCE LABORATORIES

The other important Advance drier developments are *Rare Earth Naphthenate 4%* and *Rare Earth Octoate 6%*. These compounds contain not just one rare earth metal but, mainly, cerium and lanthanum with traces of other rare earths, permitting these Advance products to serve as Cobalt substitutes, directly, in baked finishes.

In general, the use of Advance Rare Earth Naphthenate 4% offers these advantages: Excellent color retention in baked films not found in competi-

tive rare earth salts; marked drying efficiency; savings in cost by reducing amino resin additions; improved water and soap resistance of film, and imparts increased cross-linking in molecular structure, resulting in tougher and harder films.

#### FOR BAKED WHITE ENAMELS

Startling results have been found in baked white enamels by the use of ZIRCO with Advance Rare Earth Salts. Information is available upon request.

#### Specific Advantages Noted

The advantages offered by drier modification with Advance Zirco Drier Catalyst 6% in various types of finishes, in addition to reduction in drier adsorption, include:

**EXTERIOR HOUSE PAINTS**—Improved through dry, hardness without embrittlement and fume-proofness.

**OLEORESINOUS FINISHES**—Better gloss, improved hardness and non-toxic\*\* properties, fume-proof qualities and replaces lead on a 1:10 basis.

**ALKYDS**—Improved drier stability when ZIRCO Catalyst 6% replaces lead, less drier staining, excellent gloss (freedom from hazing and wrinkling), better through dry and hardness and non-toxicity\*\*.

**AUTOMOTIVE AND INDUSTRIAL FINISHES (Force Dry)**—Uniformity when parts are baked in different ovens, better gloss and freedom from discoloring, "whiter" white coatings, less wrinkling and improved adhesion. The tremendous possibilities inherent in Advance ZIRCO Drier Catalyst 6% are more fully explored in a comprehensive data sheet, available upon request.

#### FOR OTHER INDUSTRIES

In the polymerization of silicones, ZIRCO has been found to be an excellent catalyst and prolongs the shelf life of the catalyzed solution.

Because of its excellent color retention, ZIRCO can be utilized as a partial replacement of cobalt promoters when used with peroxide catalysts in the polymerization of polyesters.

CONVENTION  
ISSUE

PROGRAMS  
PAGES 56-57

EXHIBITORS  
PAGES 58-60

COOPER  
1953

**ADVANCE SOLVENTS & CHEMICAL CORP.** 245 Fifth Avenue, New York 16, N.Y.

**Driers**

**Paint Additives**

**Fungicides**

# Over 30,200,000 People WILL SEE THIS AD!

## NEW! WALLKYD

Chemistry's Wonder Alkyd for Wall Enamels

A REVOLUTIONARY DEVELOPMENT IN WALL ENAMEL FORMULATION!

NEW ALKYD-BASE WALL ENAMELS ARE A CINCIN TO APPLY... ROLL READILY... BRUSH FREELY... DRY RAPIDLY... WASH EASILY... KEEP THEIR VELVETY BEAUTY FOR YEARS



IT'S WALLKYD FOR HANDSOMER, MORE ENDURING OUTDOOR PAINT JOBS, TOO!

Home owners want outside paints to last as long as possible so that their "biggest investment in painting" is a pleasure to look at their own time. They want a paint that's easy to apply and easy to wash. That's why many are turning to WALLKYD for their house painting.



Imagine a new base for wall enamels that is hard and shouder above any other type. Such a miracle ingredient is WALLKYD, which brings to the home, for the first time, the unique wear-and-water-resisting qualities featured in the sprayed-on, baked enamel used to finish today's automobiles, refrigerators, stoves and washing machines. WALLKYD is also an alkyd resin, now available in easily-applied, air-drying form.

Only WALLKYD-base wall enamels offer you all these advantages: They go on easily. Anyone can paint like a "pro" and turn out a job that's smoother, freer from brush and roller marks, laps, runs, sagging.

They dry in a jiffy. You can put furniture and drapes back in the evening when you paint in the morning. And even if you soil the surface the next day, you'll find it hard enough to wash without marring. There's no lengthy "tender" period.

They come clean quickly. Soap and water easily remove finger-prints, chalk, pencil and crayon marks, dirt smudges, dust accumulations. Even repeated washing won't wear away the finish.

They work on any surface... walls, ceilings, trim... plaster, wall-board, metal, wood.

They "cover" better. Solvent-thinned WALLKYD-base wall enamels actually contain more pigment and color (more paint) per gallon, which accounts for their greater hiding power per coat.

They're tops in beauty. You can't beat the delicate pastel, vibrant deep tones, longer life, greater resistance to scratching, marring and chipping characteristic of these finishes.

They're free from pungent "wet paint" fumes that smell bad, burn the eyes and sting the nose and throat.

Whether you employ a painter or "do it yourself", you'll want to get the unusual combination of features available only in a WALLKYD-base wall enamel. Write us for a list of the paint manufacturers now formulating with WALLKYD.

Demand a Brand made with WALLKYD

To get full advantage of the many improved properties imparted by WALLKYD, today's finest alkyd for flat wall enamels, make sure the manufacturer guarantees a minimum of 85% WALLKYD in his "vehicle solids".



Just the beginning...

of a Giant campaign

...full pages this Fall in these leading national magazines...

THE SATURDAY EVENING POST  
Sept. 12th ... Oct. 3rd  
BETTER HOMES AND GARDENS  
Sept. ... Oct.  
U. S. NEWS & WORLD REPORT  
Sept. 18th ... Oct. 9th  
FORTUNE  
Sept. ... Oct.  
BUSINESS WEEK  
Sept. 5th ... Sept. 26th

Creative Chemistry... Your Partner in Progress  
**REICHHOLD CHEMICALS, INC.**  
630 Fifth Avenue, New York 20, N. Y.

Producer of WALLKYD - and other synthetic resins for the paint, printing ink, paper, plastic, textile and laundry industries.

## BE READY TO MEET THE DEMAND! FORMULATE WITH WALLKYD NOW!

Tie in your own wall enamel promotion with this hard-hitting campaign!

For full information on WALLKYD and the WALLKYD advertising program, write...

**REICHHOLD CHEMICALS, INC.**  
630 Fifth Avenue, New York 20, N. Y.

e

The paint thinner with no more  
odor than pure water!

# Shell Sol 72

. 3rd  
Oct.  
9th  
Oct.  
26th

## Odorless

—It looked as though no one would ever come up with a thinner you couldn't smell. But this is it—Shell Sol 72. You cannot detect an odor of any kind. It's the completely "smell proof" thinner for use in finishes for homes, hospitals, restaurants and hotels.

## Holds wet edge longer

You get bonus qualities with Shell Sol 72. Your finishes will hold a wet edge longer . . . users can be less fussy about brushing and lap marks.

### TEST SHELL SOL 72 YOURSELF!



1. Put two drops of water on a clean cloth.



2. Put two drops of Shell Sol 72 on another.



3. Compare! Shell Sol 72 has no more odor than water.

We will send you a one-gallon sample of Shell Sol 72 for your own tests. Please request it on your company letterhead.

## SHELL OIL COMPANY

50 WEST 50th STREET, NEW YORK 20, NEW YORK



**Think of FALK First!**

AS A **DEPENDABLE SOURCE FOR**

# Lacquer TYPE Alkyds



## FALKYD SOLUTION LS

is a top quality, non-oxidizing alkyd  
for combination with nitrocellulose  
in automotive and furniture lacquers  
where *quality of finish*  
is of prime importance.



For formulation information . . .  
get in touch with your nearest  
Falk representative today.

## CARGILL, INCORPORATED

Vegetable Oil Division

### FALK QUALITY PRODUCTS SINCE 1910

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Pittsburgh 30, Pa.

Chicago Sales Office, 135 South LaSalle St.

New York Area Office, 615 River Road, Edgewater, N. J.

PLANTS: CARNEGIE, PA.

EDGEWATER, N. J.

MINNEAPOLIS, MINN.

# PAINT and VARNISH

## NEXT ISSUE

The November issue of PAINT AND VARNISH PRODUCTION will carry a complete resume on the activities of both annual Paint Conventions and Paint Industries' Show. This will include abstracts of the various technical papers delivered at the Federation Meeting, a write-up of new raw materials and developments featured at the Paint Industries' Show, and complete details of National Association Meeting.

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# KETONES

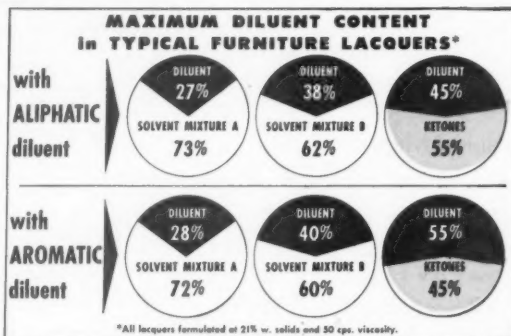
give you a better break with  
any lacquer diluent...  
and here's why!

**W**HETHER YOU USE an aliphatic or aromatic diluent, you can use more diluent when the active solvent in your lacquer formulations is a ketone.

A glance at the chart will show how ketones give you a better break. Here are six typical furniture-type lacquers with the same solids content and the same viscosity. They differ only in the active solvent employed. Three contain an aliphatic diluent. Three contain an aromatic. Take a look at the diluent content!

The ketone-aliphatic combination holds 45% diluent, and the ketone-aromatic—55% diluent. *The ketone-based lacquers show the highest diluent content with both types of diluent.*

There are other important advantages to be had with ketones, too. You can get higher solids



concentration in a practical spraying viscosity range. Or you may use greater proportions of the high viscosity nitrocelluloses to obtain lacquers with improved toughness and durability.

The advantages to be gained from using Shell ketones are summarized in two new pamphlets, *This is MIBK* and *This is MEK*. Ask your Shell Chemical representative for your copies.

## SHELL CHEMICAL CORPORATION

Chemical Partner of Industry and Agriculture

Eastern Division: 500 Fifth Avenue, New York 36 • Western Division: 100 Bush Street, San Francisco 6  
Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • St. Louis  
In Canada: Chemical Division, Shell Oil Company of Canada, Ltd. • Toronto • Montreal • Vancouver



# Editorial Comment

## Convention Programs -- For You

**A**S YOU all know Atlantic City is the scene of both the 65th annual convention of the National, Paint, Varnish and Lacquer Association and 31st annual meeting of the Federation of Paint and Varnish Production Clubs.

A quick glance of the National Association's convention program serves to indicate what the paint industry can expect of the present administration's attitude toward business.

In recent years, heads of various government agencies were scheduled to give their views on controls, allocations and prices to members of the paint industry who were chiefly concerned with the availability of basic raw materials, allocation of steel drums and containers, and the uncertainty of business during the Korean War. Thus, the National Association's past convention programs were designed to provide its members with basic information needed to guide them in their business activities.

Since the beginning of 1953, business has taken on a new aspect in the light of a change in administration and the Korean truce.

In this connection speakers, who are in a position to present first hand information on the present administration's thinking regarding business, have been scheduled for the benefit of those attending this Association convention.

Dr. Clarence E. Manion, who inspired the 1952 convention, will speak on "The Constitution Is Your Business" at the opening session. Dr. Manion ranks as one of the country's foremost advocates of true Americanism and recently was appointed by President Eisenhower to head the Commission on Intergovernmental Relations to report on federal-state taxation matters.

The Honorable Walter Williams, Under Secretary of Commerce, will talk at the Tuesday morning session. His topic will be "An Official

Look at America Under a New Administration." He will tell of the President's program to assure peace and stability of the American economy.

The third dynamic speaker, who will address the closing session on Wednesday, is James A. McConnell, executive head of the Cooperative G.L.F. Exchange. His topic, "An Appraisal of Our Present Free Enterprise System," will be an authoritative review of political, economic and governmental forces affecting every business man.

Rounding out the program will be three full days of stimulating forum discussions among trade sales, industrial product finishes, roof coating, putty and caulking compound manufacturers, and the Wholesale-Distributors Division. A special forum will also be held for advertising and sales promotion managers.

Education, Research, and Production will highlight the Federation meeting.

The keynote speaker will be Dr. Roy H. Kienle, director of Applied Research of Calco Chemical Div., American Cyanamid Co. His topic will be, "The Protective Coatings Industry: A Practical Science."

The Fifth Mattiello Lecture will occupy its usual position of prominence and will be presented by Dr. A. C. Elm of the New Jersey Zinc Co. Dr. Elm is an internationally recognized authority in the field of drying oils, pigments, and paints. He will present a paper on "The Effect of Pigments Upon the Mechanical Properties of Paint Films."

Of particular interest to both the technical and production men of the paint industry are four practical round-table discussions dealing with water dispersed paint systems, gadgets and gimmicks, production planning and scheduling, and fire-retardant paints.

This year's Paint Industries' Show, one of the largest ever staged, will consist of 77 exhibitors.

For the third successive year a Lacquer Information Center will be a feature of this show. This exhibit is being presented through the co-operative effort of suppliers of raw materials for lacquer and of suppliers of equipment for spraying lacquer.

The Paint Industries' Show brings together each year producers and suppliers of raw materials, the manufacturers of paint processing equipment and the buyers of these products. From these contacts have come many new and improved coatings. The Paint Industries' Show has contributed substantially to the technical growth of the paint industry. We are confident that this year's show will live up to all expectations and provide you with many new ideas to take back to your plants and laboratories.



# more

...  
at the 1953

*BAKELITE's 35-foot booth will be packed with exhibits and information to assist you in your formulating problems. Among the many features:*

A new rapid-drying vinyl-acetate resin latex giving a non-reemulsifiable film will be introduced. Based on BAKELITE Vinyl Resin WC-130, this vehicle provides improved performance for interior finishes, especially in pigmentation stability and flow-out. As a sealer-coater for wood, plaster and masonry, it provides extra advantages of pitch resistance, alkali resistance, and excellent fill-in for masonry.

Exposure panels compare finishes based on BAKELITE Phenolic Resin BR-9400 with finishes based on BR-254. Now tested for 24 months in Florida and 18 months in New Jersey, the panels continue to show that you can formulate with the economical BR-9400 without sacrifice in performance. Excellent weathering is a feature of siding panels coated

with a BR-9400 formulation.

New data is offered on finishes based on BAKELITE Phenolic Resin BR-103 as exterior coatings for freight and tank cars, and similar equipment. There are ready-mixed aluminum paints. Economy of BR-103 for industrial maintenance and as automotive primers is demonstrated. The fast cooking and excellent solubility, economy and durability of BR-103 make it an excellent choice in these applications.

New information and formulations are given for BAKELITE Vinyl Organosol and Plastisol Dispersion Resins. A display of products will show many of their industrial applications.

A complete new portfolio of literature—technical data, formulations, test results, will be available and the exhibit will be well staffed with BAKELITE personnel to discuss your problems. Consult with them at the show, or write Dept. SJ-75 for further information.

new formulations

new performance data

# ... at BAKELITE'S exhibit 1953 paint industries show

**BAKELITE'S BOOTHS**  
Nos. 31, 32, 33

**1953 PAINT INDUSTRIES  
SHOW**

**Oct. 27 thru 30th**  
**Chalfonte-Haddon Hall**  
**Atlantic City, New Jersey**

The policy of Bakelite Company for more than 40 years is to offer thoroughly tested and evaluated products to help manufacturers open up new and profitable markets.

## BAKELITE

TRADE-MARK

**Vinyl, Phenolic and Styrene  
RESINS FOR COATINGS**



**BAKELITE COMPANY**

*A Division of  
Union Carbide and Carbon Corporation*

UCC

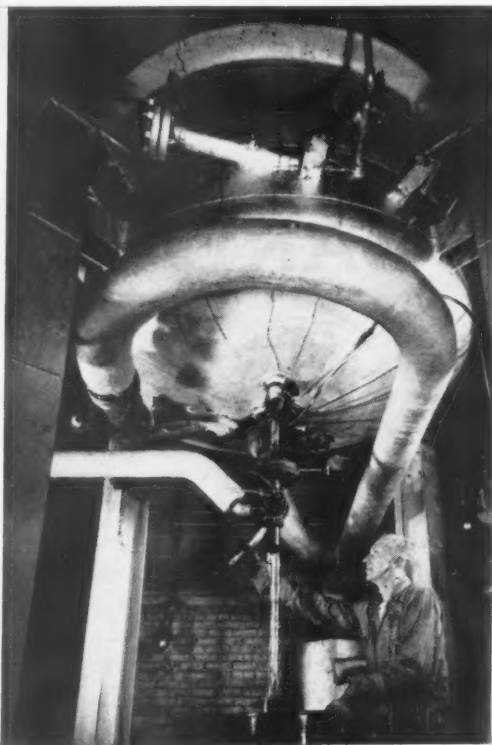
**30 East 42nd Street, New York 17, N. Y.**

*In Canada:  
Bakelite Company (Canada) Ltd., Belleville, Ont.*



## NEW DOW MONOMER OF INTEREST TO PRESENT USERS OF STYRENE

DOW vinyltoluene readily modifies all common paint-drying oils to produce new properties of interest to paint manufacturers



Vinyltoluene, the latest in a series of monomers developed in Dow's research laboratories, will supplement styrene in many beneficial ways. This new monomer shares properties in common with styrene, pointing to its advantageous substitution for styrene in creating new families of products such as synthetic rubber, rubber reinforcing resins, polyester resins, molding powders and paint vehicles.

Development work has demonstrated that paint vehicles

made from vinyltoluene will be particularly valuable. While styrene will react with several usable paint vehicles, vinyltoluene has proved its ability to react to form clear, useful vehicles with *all* of the commercially important, low-cost drying oils.

Quantities of vinyltoluene sufficient for developmental work are now available. For copies of the vinyltoluene-styrene comparison chart write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Dept. PL 1357A.

*you can depend on* **DOW PLASTICS**





# ASP PROGRESS REPORTER

WERT PIGMENTS THAT IMPROVE YOUR PRODUCT

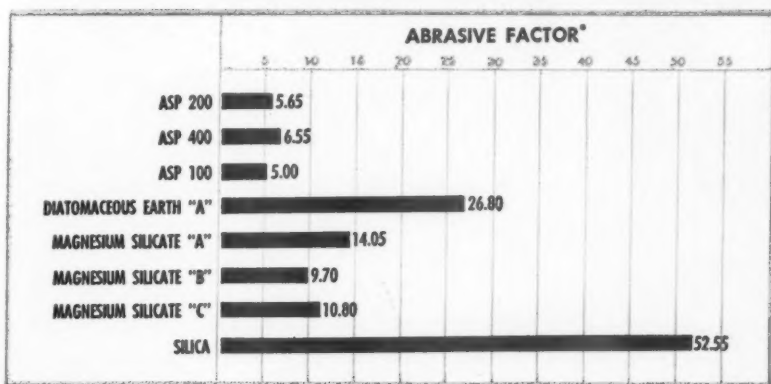


ALUMINUM SILICATE PIGMENTS

PUBLISHED BY EDGAR BROTHERS COMPANY

METUCHEN, NEW JERSEY

## TESTS PROVE SUBSTANTIAL SAVINGS POSSIBLE FOR PAINT MANUFACTURERS



\* Loss in milligrams in excess of 4.45 mg Machine Constant.

Results of Abrasive Tests show Average Abrasive Factor of Edgar ASPs to be 5.73. Other siliceous inerts tested range from 9.70 to 52.55.

### How These Abrasive Tests Were Conducted At Edgar Laboratory

These exacting abrasion tests were conducted in the Edgar Brothers Laboratory in McIntyre, Georgia.

For this purpose a Gardner Washability Machine was used on representative samples of each siliceous inert tested. A sponge rubber pad, faced with billiard felt, was substituted for the usual brush.

The exact weights of copper strips, 4" x 18", were individually determined, and, one-by-one, then subjected to the test. A 20% slurry was slowly dropped on the copper while the weighted felt covered rubber sponge was pulled back and forth over the strip and through the slurry.

After 2,500 cycles, or 5,000 strokes, the copper was removed, carefully washed, dried and re-weighed. The copper was then replaced in the abrader and 2,500 more cycles given it.

The first 2,500 cycles were applied solely to remove all traces of the oxide coating on each strip. Only the loss in milligrams resulting from the second cycle was taken as the Abrasive Factor.

To establish a "machine constant," tests were run using distilled water only as the abrasive medium. The Abrasive Factor of water in all cases was subtracted from the Factor found with the slurry.

### EASY TO TEST

It is easy to test the qualities of Edgar ASPs right in your own formulas. All you need do is use the coupon to order your free sample drum of the ASP best suited to your requirements.



### Competitive Product Tests Show Edgar ASPs Lowest In Abrasion

The continuing Testing and Research Program at the Edgar Brothers Laboratory has, once again, produced evidence that Edgar ASPs can reduce paint manufacturing and machine maintenance costs.

Testing the relative abrasive qualities of Edgar ASPs and competitive siliceous inerts, has shed new light on this important subject.

These tests furnish proof that Edgar ASPs are relatively non-abrasive and can be safely ground on a three roll mill, even with high pigment loading, without risk of serious abrasive action on the rolls.

It was found that all grades of Edgar ASPs are considerably less abrasive than other siliceous inerts tested. For example: the average Abrasive Factor of the four ASPs tested was 5.73 plus, while the Abrasive Factors of the other siliceous inerts tested ranged from a low of 9.70 to a high of 52.55 (see bar chart).

The low Abrasive Factor of Edgar ASPs is an assurance of reduction in mill wear when paints are formulated with these finer inerts.

Increased speed of production, decreased machine maintenance costs add up to real dollar economy for Paint Manufacturers.

### EDGAR BROTHERS COMPANY

10 STATION PLACE METUCHEN 4, NEW JERSEY

Please send me the following:

\_\_\_ File Folder with up-to-date Technical Literature.

5 lb. sample drum of . . . ASP 100 ☐ ASP 200 ☐ ASP 400 ☐

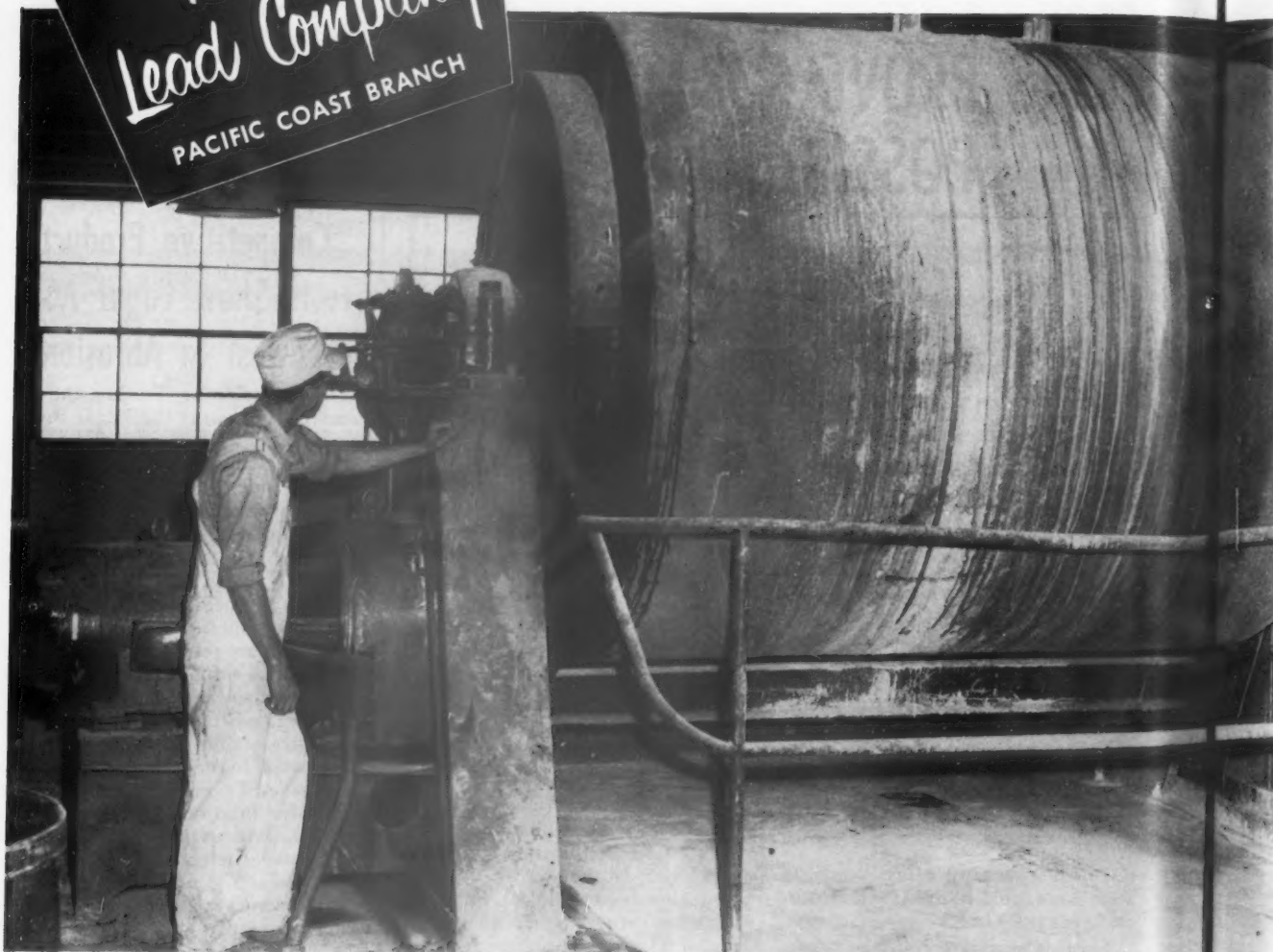
Name \_\_\_\_\_ Title \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

**National  
Lead Company**  
PACIFIC COAST BRANCH

**NOW GETS A 6+ N. S.**



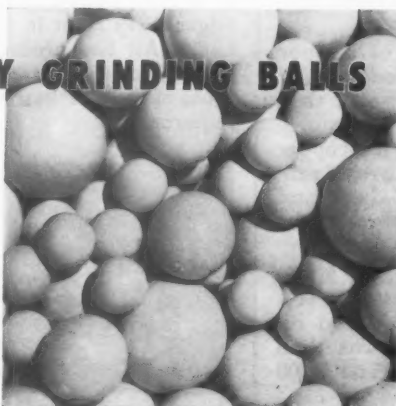
**Coors**

This is a photo of the National Lead Co., Pacific Coast Branch, 6'x7' mill that gets a 6+ N.S. grind in 18 hours at 14 r.p.m.— by using COORS High Density Grinding Balls.

By test the best

**HIGH DENSITY GRINDING BALLS**

- High Density — Faster Dispersion
- Tough Ceramic — Minimum Wear
- Pure White — No Color Contamination
- Smooth Surfaces — Easy Cleaning
- High Strength — No Chipping or Cracking

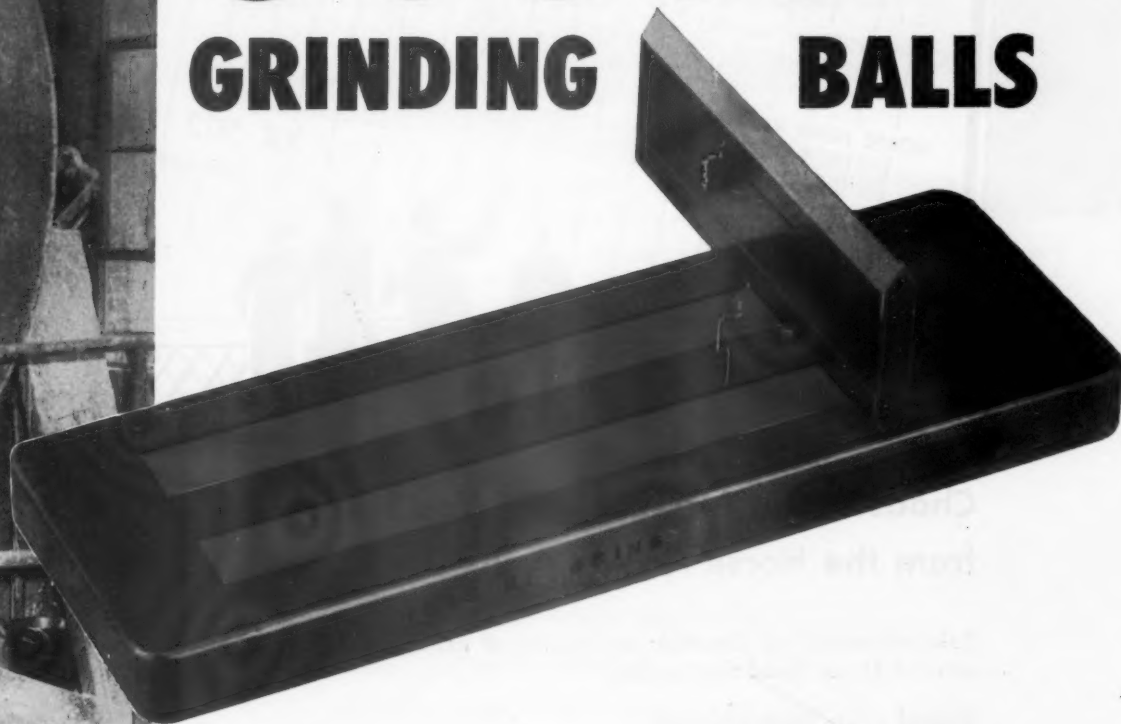


**COORS  
PORCELAIN  
COMPANY**  
Golden, Colorado

**N.S. GRIND IN 18 HOURS WITH**

**Coors** *High Density*

**GRINDING BALLS**



that gets  
ing Balls.

• "Since charging with COORS High Density Grinding Balls, it has been possible here at National Lead Co. to get grinds up to and including 7 N.S. within a 24-hour grinding period. We use the Low Solids Grinding technique; loading the mill to 55-60% of volume, combined balls and paste; and operating at a consistency of 100 to 120 KU.

"Initially this 6'x7' mill was driven at 18.6 r.p.m. A certain amount of chipping of the balls resulted. Nevertheless, it was possible to get a 6+ N.S. grind on a flat point, containing talc, in 18 hours. To stop the chipping, the mill speed was reduced to 14 r.p.m. The grind standard of 6+ N.S. was still attained in 18 hours, and the chipping stopped."

COORS High Density Grinding Media offers you an economical means of increasing the production capacity of your pebble mills. Also, they are used in steel ball mills, replacing steel balls, to minimize iron contamination.

**National Sales Representatives . . .**  
**LZP Industrial Ceramics, 2500 West 7th Ave.,**  
**Denver 9, Colorado**

COORS PORCELAIN COMPANY  
c/o LZP Industrial Ceramics  
2500 West 7th Ave.,  
Denver 4, Colorado.

- ☐ I would like information and samples of COORS High Density Grinding Balls.
- ☐ Also, please send information on COORS Natural Shape® High Density Grinding Media.

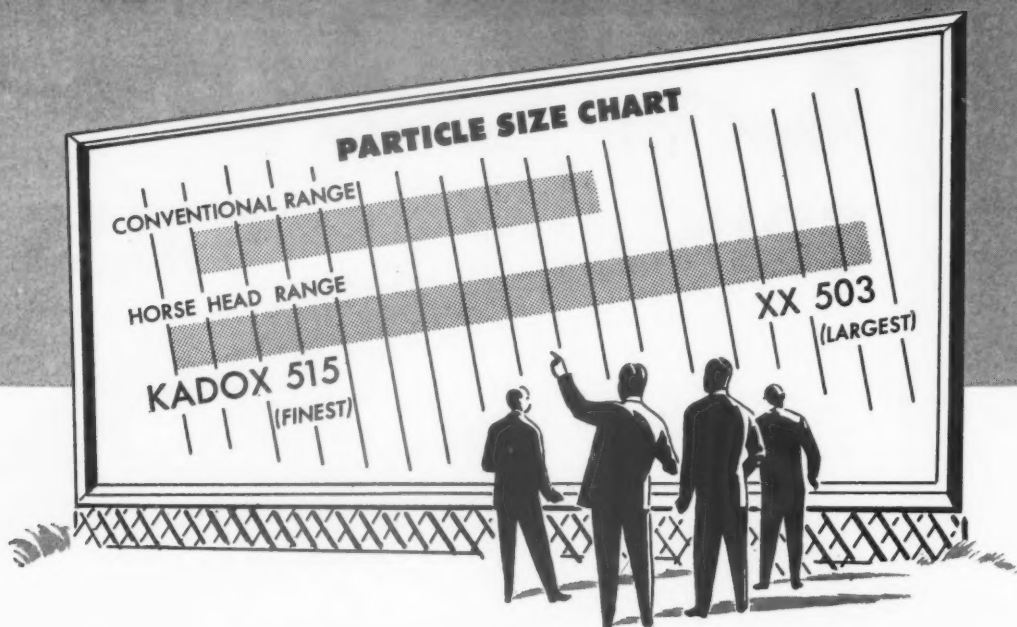
Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City & State \_\_\_\_\_

# TO FORMULATE FASTER and BETTER with lead-free ZINC OXIDES...



## Choose the PARTICLE SIZE You Need from the Horse Head Family

Take advantage of the wide assortment of particle sizes and other characteristics of Horse Head zinc oxides.

### Speed your formulating:

You balance your formulas faster — fewer adjustments are necessary — when you select from the broad ranges of oxides in the Horse Head line.

### Improve your paints:

You compromise less by choosing the oxides that most nearly meet your needs from the Horse Head family.

You build better finishes by using some of the many exclusive Horse Head oxides.

Which Horse Head oxides would you like to test now?

## THE NEW JERSEY ZINC COMPANY

Producers of Horse Head Zinc Pigments  
...most used by paint manufacturers since 1860  
160 Front Street, New York 38, N. Y.



**PARTNERS** in quality lacquers

**... n-Butyl Alcohol**

**... n-Butyl Acetate**

Here's an alcohol-ester partnership worth trying in your coating formulations. CARBIDE's n-butyl alcohol and n-butyl acetate consistently meet high specifications giving you uniform solvent and lacquer performance with these outstanding features:

**HIGH DILUTION RATIO WITH ALIPHATICS**

**SLOW EVAPORATION RATE**

**LATENT SOLVENT AND COUPLER**

**EXCELLENT RESIN COMPATIBILITY**

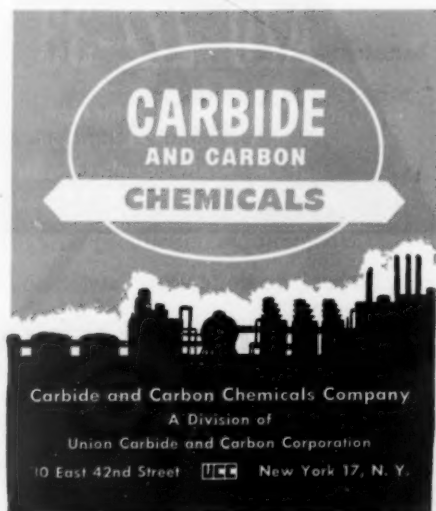
**INCREASED BLUSH RESISTANCE**

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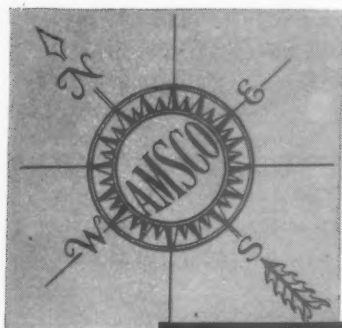
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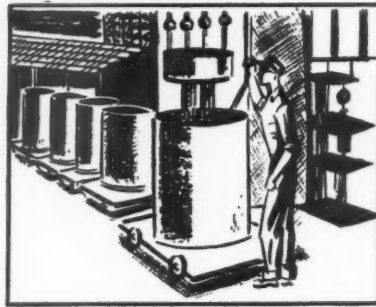
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## **A SOLE PRODUCER IN PRIMARY NAPHTHENIC ACID POSITION —**

## **B OUTSTANDING RESEARCH BACKGROUND**

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The naphthenic acids and solvents are refined in this country from California crude oil originating in fields controlled by the Standard Oil Company of California.

## **E NO HARMFUL WATER SOLUBLE SALTS**

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## **F SERVICED BY PIONEER TECHNICAL MAN**

Mr. C. A. Klebsattel, Vice President of Naftone, was the first paint chemist in the United States to recognize and promote the superiority of naphthenate driers over the resins, linoleates, and inorganic compounds formerly used.

## **G NO SUBSTITUTING**

Oronite, with an adequate supply of suitable naphthenic acids and solvents for each of its products, is not obliged to resort periodically to formulation changes owing to raw material variations.

## **H AVAILABLE EVERYWHERE**

Stocks are maintained at so many points throughout the nation that practically everyone can have "next day delivery."

## **I PRODUCER NOT COMPETITIVE**

Oronite does not manufacture or market, directly or indirectly, finished protective coatings or preservatives.

## **J COST LESS**

Oronite Naphthenate Driers will *never* cause trouble — trouble costs money.

## **K LESS STAINING**

Being free from modifying agents or naphthenic acid substitutes, Oronite Naphthenate Driers do not contain anything to cause unpredictable color changes in clears, whites, or delicate tints through reactions with vehicles, pigments, or other paint additives.

## **L ONLY NAPHTHENIC ACIDS USED**

Oronite's basic supply of naphthenic acid eliminates the necessity of substitution with any other acid to adjust color, viscosity, solubility, or cost.

## **M SOLVENT ALWAYS THE SAME**

Because of Oronite's basic position the solvents used throughout the year are uniform — not merely on specifications, but actually because they are from captive crudes — from the same refinery equipment. This means unequalled uniformity so far as solubility and dispersibility characteristics are concerned.

## **N THE ORIGINAL PRODUCER**

Standard Oil Company of California was the first commercial manufacturer of metal naphthenates in the U.S.A.

## **O UNEQUALLED MANUFACTURING KNOW-HOW**

Two men, Glen C. Brock, Technical Advisor to the Production Manager of Oronite Chemical Company and John T. Rutherford, Vice President of California Research Corporation, have been identified with the production of metal naphthenates since 1928 — they are still responsible for the quality and manufacturing of Oronite Naphthenate Driers.

## **P THEY ARE SAFER**

They contain no modifying agents or substitute materials to adversely influence drying activity, compatibility, or solubility.

## **Q NO QUESTION OF COMPOSITION**

The exact percentage of the metal and the word "naphthenate" appear on all labels, thereby eliminating any question as to whether or not other acids are present as modifiers, extenders, or substitutes.

## **R NOT MADE DIRECT FROM METALS**

All Oronite Metal Naphthenates are made from chemical compounds purified to remove contaminants present in commercial metals themselves, thus eliminating contamination by those impurities originally present in the crude metals.

## **S UNEQUALLED COMPOSITIONAL UNIFORMITY**

Oronite's primary source of naphthenic acid and solvent means that no substitutions ever need be made.

## **T WILL NOT AGGRAVATE LOSS OF DRYING**

Being free from peptizing agents which might be anti-oxidants, Oronite Naphthenate Driers do not contain anything to inhibit the action of the metals or to react as a retardant in drying.

## **U PIONEER IDENTIFIED WITH SELLER**

H. M. Johnson, Vice President of Naftone, Inc., was responsible for liquid naphthenate driers being made available to industry.

## **V PURITY UNEQUALLED**

Oronite Driers are unmodified mineral spirits solutions of unadulterated metal naphthenates — nothing else.

## **W FUNCTIONAL UNIFORMITY UNEQUALLED**

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## **X GREATER DILUTION STABILITY**

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## **Y PRODUCER MAKES NAPHTHENATES ONLY**

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## **Z UNIVERSAL UNIFORMITY**

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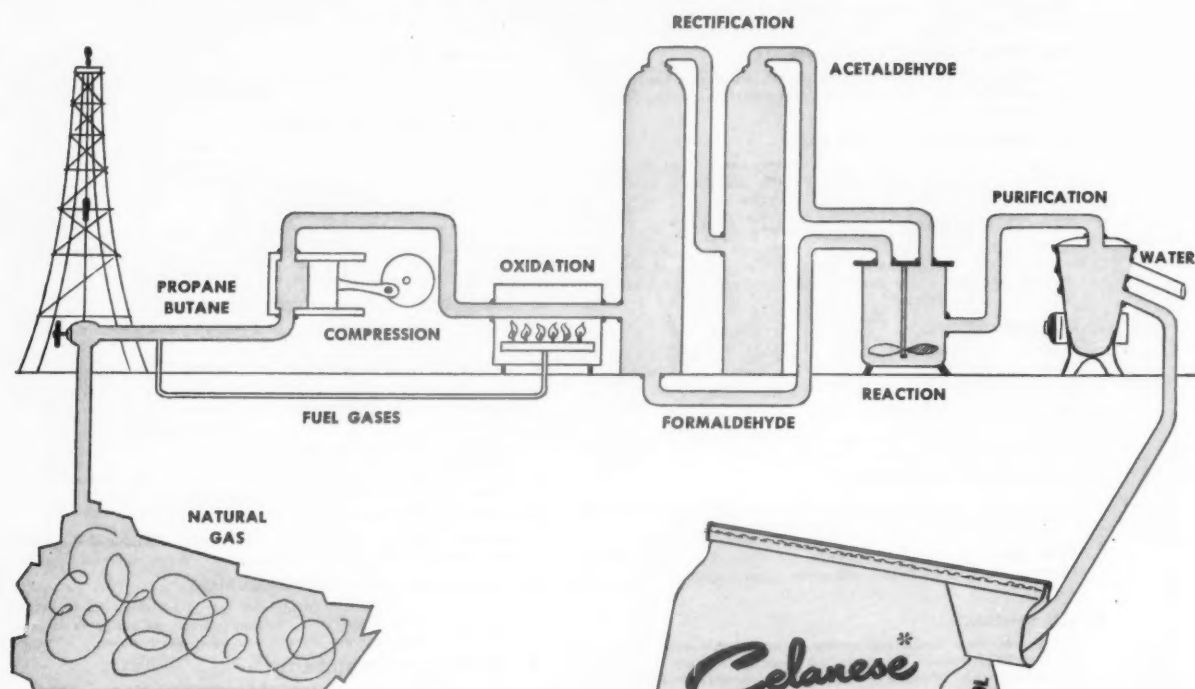
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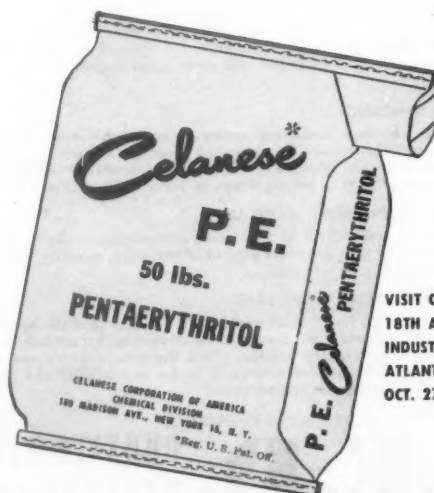
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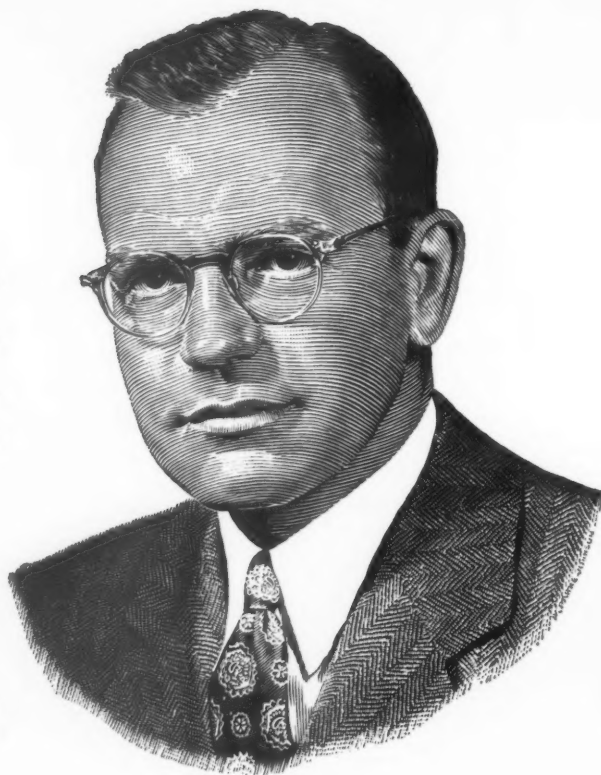
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- to this encouraging reservoir of future purchasing power, 8,000,000 Payroll Savers are adding \$160,000,000 per month by their consistent investment in U.S. Savings Bonds.
- unit sales of E Bonds in 1952 reached the highest level of the past six years—more than 77 million individual pieces. Of the 77 million units, 67 million were

in the \$25 and \$50 denominations—the bonds bought chiefly by Payroll Savers.

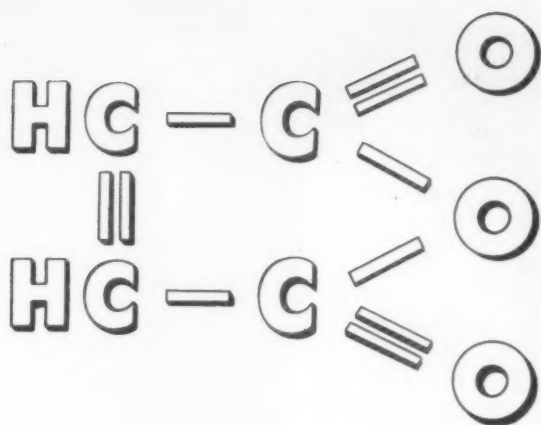
- Payroll Savers are serious savers—of the approximately \$6 billion Series E Bonds which had become due up to the end of March, \$4.5 billion, or 75%, were retained by their owners beyond maturity.

If you are not among the 45,000 companies that make the benefits of the Payroll Savings Plan available to their employees . . . or if you do have a Plan and your employee participation is less than 50%, a telegram or letter to Savings Bond Division, U.S. Treasury Department, Washington Building, Washington, D. C., will bring you all the information and assistance needed to build a good Payroll Savings Plan.

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Neo-Fat 125, a new fatty acid developed by the Armour Protective Coatings Laboratory, will maintain its excellent color during storage, processing, in the finished alkyd and after application—all at a cost that is not prohibitive. Due to the new and unique method of production, Neo-Fat 125 has this outstanding color-heat stability and also a faster, more uniform cooking time. To insure this uniformity, each lot of Neo-Fat 125 is tested and a sample alkyd prepared. This sample is checked for color and processing time—and must conform to rigid specifications.

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The opinions expressed by the authors in these articles are their own and do not necessarily represent editorial endorsement.

# Zinc Pigments



By S. WERTHAN\*

**P**ROGRESS in zinc pigments during the past year has been more in improvements in metallurgy and processing than in the development of new or modified pigments. This would be expected since the possibilities of new types of zinc paint pigments have been so thoroughly explored over the years that there is nothing on the horizon that indicates the coming of an entirely new type. Also, the depressed price of zinc has necessitated that a pigment manufacturer give careful consideration to increasing the efficiency of his manufacturing process.

Among these developments is the application of vertical refining boilers to zinc oxide furnaces. By this means, the purest grades of French Process and USP zinc oxides are produced from low grade metal.

An efficient and economic method of loading and unloading has been adopted by some zinc pigment manufacturers. Approximately forty bags, or a ton of zinc oxide, is handled as a unit. This permits the loading and unloading of a freight car or truck by a man with a fork truck, in a fraction of the time and at a fraction of the cost that is required for handling individual bags. This unit packing also greatly facilitates and simplifies storage of the pigment.

## Recent Developments

An eighteen per cent lead zinc oxide was introduced by the *Sherwin-Williams Company*. Most of the lead in this oxide is present as the disulfate

## The Author

Mr. Werthan received his Bachelor of Science and Master of Science in Chemistry from the University of Denver. After completing his chemical education, Mr. Werthan was employed in the laboratory of the Copper Queen Mines of the Phelps Dodge Co. During World War I he served in the Chemical War Service and in 1919 entered employment of the New Jersey Zinc Co. where he worked on paint technology. Since 1928 he has been in charge of the company's paint research program.

( $\text{PbO.PbSO}_4$ ), while in other lead zinc oxides, the lead is present as a combination of the normal sulfate ( $\text{PbSO}_4$ ) and the disulfate. The manufacturer claims greater effectiveness for the lead in his eighteen per cent lead zinc oxide. However, chemical reactivity tests show comparable rates and degrees of reactivity with linseed oil acids for the two types of lead sulfates.

The *St. Joseph Lead Company* has developed and offered a zinc oxide which they claim is unusually effective in making paint less receptive to the lodgement of mildew spores.

## Exterior House Paints

There have been no marked changes in exterior house paint formulations during the year. The vehicle continues to be a combination of linseed oil and bodied oil, although alkyd resin and other types of vehicles are being investigated. The pigmentation

consists of combinations of titanium dioxide, lead, zinc oxide and extender pigments, or just titanium dioxide, zinc oxide and the extender pigments. The lead in the pigment is present as lead zinc oxide or as one of the basic lead pigments. Because of one coat repainting, there has been a trend toward higher hiding paints, obtained through the use of more titanium dioxide with a corresponding increase in the zinc oxide to provide balanced chalk resistance, cleansing, and tint retention. Paint manufacturers continue to vary widely in their preferences as to type of zinc oxide. The acicular, the nodular, the high consistency, the low consistency, the blended leaded, and the co-fumed leaded types all continue to have their ardent followers. Extensive experience has demonstrated that first grade paints of excellent application and weathering properties can be formulated using any of the types. The trend seems to be toward the use of the lower oil requirement type, especially in fume proof paints.

The inclusion of from five to fifteen per cent of fine particle sized zinc oxide in the pigmentation of alkyd resin architectural enamels, to prevent yellowing of the film, has grown. The resin manufacturers have produced improved alkyd resins so that, through proper selection, the hazing or deterioration in gloss that frequently occurred when the film was exposed under high humidity conditions generally has been eliminated. "Seeding," which occasionally develops in alkyd enamels during prolonged shelf storage (over two years) and which can be a very

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# Titanium Dioxide Pigments



By W. B. ANDERSON\*

AFTER the close of World War II, the most vital problem facing all titanium suppliers was to provide more of the established titanium pigments to meet the demand inasmuch as expansion of titanium pigment productive capacity was prohibited during the war. Also, the termination of the war presented the opportunity to place into production grades of pigment which could not be fitted into the wartime productive scheme. These grades were the result of continued research before, during and after the war.

## Rutile Type

Since 1941, the trend in titanium pigment has been toward the rutile crystal structure which now is the predominant white hiding pigment for practically every coating which requires white pigment. With the exception of white house paints which need the chalking type anatase titanium dioxide in some proportion to promote "self cleaning" there is no important type of coating in white or tints in which rutile titanium dioxide or rutile-calcium pigment or a combination of these is not used.

Brightening, whitening and hiding power have been developed to their maximum in the rutile type titanium dioxide pigments. Although noted for their adaptability to any type of vehicle system-oils, varnishes, all types of resins, cellulose—these pigments through certain grades offer the paint maker the easiest means of achieving

## The Author

Mr. Anderson has been associated with titanium pigments since their early commercial production by the Titanium Pigment Co. and the National Lead Co., Titanium Div. He played an important part in the development of improved titanium pigments especially the first commercial titanium pigment combining high strength with the rutile crystal structure in 1941. He was also instrumental in the expansion of new uses for titanium dioxide and other titanium products.

the results he desires in his particular line of paints for the requirements of his market and the other raw materials available to him.

Thus, when an extended pigment is required such as in semi-glosses, flats, undercoaters, etc., the rutile-calcium pigments usually offer the most effective and efficient extension of rutile titanium dioxide. For in these pigments, titanium dioxide is precipitated upon and coalesced with calcium sulphate in unique combination of rutile titanium dioxide and extender which is not available in any other form.

The 30% titanium dioxide rutile-calcium pigment and a similar type of pigment, processed for maximum ease of mixing and grinding for finest dispersion, maintain a dominant position in the industry for coatings which require an appreciable amount of extender.

However, in some new products such as alkyd flat wall paints often at high total pigment volume, a higher titanium dioxide content for rutile-calcium pig-

ment may be considered advantageous.

Accordingly, a new rutile-calcium pigment embodying all of the unique qualities of the best 30% product plus higher hiding due to higher titanium dioxide content was offered to the industry in 1952. This pigment is a coalesced rutile-calcium pigment containing approximately 50% titanium dioxide and 50% calcium sulphate anhydrite. Other than its strictly technical advantages, this pigment affords the paint manufacturer, who would ordinarily not be able to buy "pure" rutile titanium dioxide in carloads, the opportunity to acquire higher titanium dioxide content at a lower carload price. Generally, this particular pigment like other rutile-calcium pigments is found superior in all paint properties to separately prepared blends of "pure" rutile titanium dioxide and added extenders usually available. The 50% pigment affords the formulator an opportunity to achieve most economically the right balance in many paints between pigment, extender and vehicle.

## Improvements

In the way of improvements made on pure titanium dioxide pigments during the last few years, broadly speaking, the improved pigments comprise types or grades for low, medium and high resistance to chalking, retardation of after-yellowing of coatings, plus easy mixing and grinding for high degree of dispersion. The application of fluid-energy mills in processing titanium pigments to secure easy grinding qualities was pioneered by Titanium Pigment Corporation.

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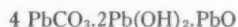
\*Mr. W. B. Anderson is connected with the Titanium Pigment Corp., New York 6, N. Y. in promotion and advertising capacities.

# White Lead Pigments\*

**L** EAD PIGMENTS have had a wider use in exterior house paints, and for a longer period of time, than any other class of pigments, and yet it is not fully recognized, the important part which lead pigments play in the paint industry. Lead pigments function chemically in a paint film to stabilize the film, contributing mechanical strength, toughness, flexibility, and distensibility, and of particular importance, to a very high degree inhibits and resists water sorption. The chemical reactions taking place in a paint film during the course of deterioration by the elements are retarded or stabilized by lead pigments, and the rate of destruction is reduced, resulting in a film of long life and increased durability.

## Basic Lead Carbonate

There have been a number of white lead pigments developed within the past few years, and referring first to the original white lead pigments, basic lead carbonate, it is not too well known that the most basic form of white lead has an empirical composition of:



This is a product produced and sold by *National Lead Company*. The generally recognized composition of white lead is:



It is evident in reference to the above, and knowing that the basicity or reactivity of lead pigments plays an important part in the durability of a paint film, it will be seen that the most basic form of white lead above may contain as much as 10% more available reactive lead oxide than the older composition produced years ago.

## Basic Silicate White Lead

This is a new pigment and realizing that only the surface of the individual

particle of reactive pigments is involved in chemical reactions between the pigments and vehicles of paints, this product was designed wherein the reactive compounds of lead are concentrated on the surface. This product is the result of dry phase chemical reactions, where, within a given range of temperature, the molecular activity is sufficient to cause the formation of a chemical compound in the solid state, and is known as Basic Silicate White Lead "45X" (National Lead Co.)

There are several other lead pigments which may be classified as white lead pigments and these products find application in the paint industry for special uses such as stabilizers of paint film against light and ultra-violet deterioration and to retain gloss and generally improve the life of a paint film.

## Special Types

"Dutch Boy" Normasal (National Lead Company), is a reactive product between salicylic acid and litharge. This product has very limited opacifying power. Nevertheless, in the house paint field, the modern trend is towards more and more color in outside house paints. The formulation of such paints having both good color permanence and film durability poses quite a problem for the paint formulator. It has been found that the inclusion of small amounts of the normal lead salt of salicylic acid (10 to 15%, by weight) in the pigment phases of the paint, the color permanence and ultimate durability will be greatly enhanced. A combination of Basic Lead Silicate "45X" pigment, plus a small amount of the normal lead salicylate together with the necessary extender pigment, has been found to constitute an excellent pigment combination for a tinting base for deep colored house paints of excellent durability and color permanence. Such a combination of white lead pigments produced a pigmentation of the desired low white hiding power, thus eliminating the

need for excessive amounts of color pigment to mask out the tinting strength of the white pigment being used. The basic lead silicate pigment contributes to film formation, whereas the normal lead salicylate pigment restricts film degradation. The exterior durability of clear wood finishes, based on drying oils as well as pigmented and transparent stains for exterior exposure on wood, is greatly enhanced by the combination of a small amount of normal lead salicylate with the drying oil base.

Another new development in the field of lead chemicals and which may be properly classified as a "white lead" pigment that is finding application in the paint industry, is "Dutch Boy" Dyphos. This product is the metal salt resulting from the reaction of litharge with phosphorous acid, and in the protective coating field is finding application as a film stabilizer for exterior masonry coatings based on chlorinated rubber or the copolymer of styrene and butadiene. When used in such coatings (in only small amounts) this dibasic lead salt has been found to act as a very potent acid scavenger for the degradation products of the film binders on aging. Pigmented films of chlorinated rubber have been found to show prolonged resistance to yellowing and general film degradation when the film has been stabilized with small amounts of dibasic lead phosphite.

Two examples of the application of lead salts which can be properly classed as "white lead pigments" to paint formulation have been cited. There are many salts of lead which may be classed as white lead pigments. The behavior of the carbonates, sulphates and silicates are fairly well understood by the paint formulator but others such as those mentioned above and the phthalates, etc., are unknown to the average paint formulator. Their special application to the paint industry as well as those

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\*This article was prepared by the Research Dept. of the National Lead Co., New York 6, N. Y.

# Carbon Blacks\*

THE DEVELOPMENT and refinement in manufacture and utilization of carbon black over the past twenty-five years have opened up an era of unusual interest to the production and technical groups in the protective and decorative coatings industry.

Today the paint and lacquer industries have available a greater variety of carbon blacks than ever before to fit the special demands of the formulator.

From the consumer's side, some of the considerations that usually determine the grade and form of black are:

- (1) Blackness required for the finished product
- (2) Form, powder, dense or beads
- (3) Price range depending on end product
- (4) Suitability of black for vehicle used
- (5) Tinting, a blue or brown tone
- (6) Opacity required

## Selection

In selecting a specific black, certain finishes require high intensity black color such as automotive finishes. On the other hand, a medium high color black does an excellent job for a telephone finish or a high grade industrial dipping enamel. A regular color black would be suitable for a trim paint, automobile chassis black or ship paint.

The physical form of the black is important, since, for most efficient operation of a ball or pebble mill, the bead

type should be used. Where roller or disk type mills are used, the powdered form or the new densified form should be employed.

The color required and selected usually determines the price range. However, it is evident that an expensive black should not be used where a less expensive black will give sufficiently good color to the final applied coating.

The best dispersing blacks should be used: i.e., "vehicle seeking" types for active vehicles such as alkyds, oleoresinous and like products. The volatile or natural dispersing agent is deliberately placed on the surface of the black to help the wetting and dispersing properties.

This was brought about by the *Binney & Smith* laboratories in 1935 in carbon blacks and the high volatile layer consists of a layer of carbon-oxide complexes.

This development represented a revolutionary change in the higher color grade carbon black manufacture and resulted in carbon blacks that could be dispersed more easily by the conventional methods, i.e., three roller mills or ball type mills and without the previous disadvantages.

Prior to this time the high color grades had been characterized by a relatively low surface oxygen complex, with the consequence that they showed marked tendencies to agglomerate resulting in various degrees of separation, seeding, thixotropy and high viscosity.

The pure carbon was no longer the essential ingredient, each particle of carbon black was surrounded by a carbon oxide complex that acted as a connecting link between the carbon and a part of the surrounding vehicle in which it was dispersed. This volatile layer

not only acted as a natural dispersing agent but also made the carbon black "Carbon Hating" and "Vehicle Seeking".

The results obtained with these blacks were shorter dispersing times, glossier finishes, thinner pastes, better stability of finished product, better stability of viscosity on shelf aging, better leveling of the enamels and improved color and shade.

These results continue to be obtained over a wide range of vehicles. With the profound effect obtained due to the surface chemistry of the black on dispersion, etc., it is important to use this high volatile type of black wherever possible. Elemental carbon is not the sole factor contributing to the blackness of carbon black. Combined oxygen-carbon oxide complex—as it influences dispersion, has a profound effect on development of blackness.

With the lower color grades and furnace type of black, the dispersion difficulties are at a minimum due to the larger particle diameters and lower oil absorption and surface areas.

If a white or colored finish is to be shaded the black should be selected that will give the desired tint. Regular color channel blacks should be used for brown tints and the furnace blacks for the blue tints. In case of the furnace blacks, the larger particle size types in 50 and 83 millimicron range are best.

There are also cases where specifications require a high opacity in a single spray coat of a very thin film. Consideration should be given to the use of a low oil absorption black that will allow higher loading and still maintain low

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\*This article was prepared by the Technical Service Dept., Binney & Smith Co., New York 17, N. Y.

# Inorganic Colors



By RALPH T. URICH\*

**M**ANUFACTURERS, dealers and consumers alike are the chief beneficiaries of the growing expansion and developments arising out of the constant research and technique improvements that characterize the inorganic color industry.

Paint pigments, especially, are the target of continued study and research with the hope that finer, more economical, more versatile, more durable and more revolutionary color bases can be produced for the paint industry.

Like other producers, we at *Reichhold* are doing our part through sales service laboratories in five cities that are in perpetual search for technique and production improvements.

## Recent Developments

An outline of just a few of the more recent developments would include: a lightfast molybdate orange, which has outstanding properties, chrome greens that are a boon to manufacturers economy-wise, and a zinc yellow that has proven successful as a priming pigment.

Another important improvement in the inorganic color field is in regard to the lightfastness of chrome yellows, chrome yellow light, and the medium chrome yellows. It is now possible to use these colors in vinyl plastics and industrial applications, such as truck enamels, where quality limited their use previously. Improvements in the ease with which these colors can be dispersed and in their increased stability (lower reactivity) have also made it possible to use them with more

## The Author

Sales Manager of Reichhold's Color Division, forty-four year-old Ralph T. Ulrich has been with RCI for 14 years. Immediately after his graduation from the Newark College of Engineering in 1932, Mr. Ulrich became associated with the United Color & Pigment Co. and spent ten years with them doing research and sales work in organic and inorganic colors. He joined RCI in 1939 and continued the same type of work until 1943 when he left to join the War Production Board as a civil service employee in the Chemical Bureau. Upon his return to RCI in 1944, Mr. Ulrich was named to his present post.

reactive types of vehicles such as the styrenated alkyds.

Recently, three new chrome yellow pigments have been made available. According to the manufacturer, these chrome yellows are expected to find wide acceptance in combination with blue pigments to make clean greens of good light resistance.

Lightfast molybdate orange, the most recent of the new inorganic pigments, has been found to be superior in all around properties to the old type of molybdate oranges. Sacrificing only some cleanliness of masstone, the new orange is claimed to be outstanding in strength, hiding power and stability to highly acid vehicles. In comparing it with similar products, it was found to be as much as 50% stronger, and equipped with equal or better lightfastness and hiding power qualities.

Recommended primarily for exterior application, lightfast molybdate orange

is also especially excellent for blending with dark reds to produce lighter, brighter shades of red at considerably reduced costs. Blends with lithol rubine, BON reds create lightfast reds second only to toluidine toners. Where lower costs are desired, orange-red blends provide quality finishes.

Another recent contribution to paint manufacturers, one which is outstanding in eliminating cost and space problems, is chrome greens, called "Ferndale Greens.\*\*" Ordinarily, a manufacturer must have a complete line of the various shades of green on hand at all times for any blending or shading purpose he might have. This, naturally, requires a great deal of space and money to keep fully stocked.

A simple solution to this problem has been achieved. Six standard shades of Green, ranging from extra light to extra dark, have been produced. These are a series of greens in which light and dark shades may be blended to create an intermediate shade without fear of producing a dirtier color or one that will flood or change. They are entirely compatible. This characteristic added to bright cleanliness, lightfastness, and ease of mixing and grinding with normal paint vehicles gives these chrome greens top quality.

As a result, manufacturers need stock only two shades of green and reduce warehouse space and capital needed for green inventory. At the same time they can achieve a greater flexibility in the formulation of new shades. When they set up the two

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\*\*Ferndale Greens are produced by the Color Div. of Reichhold Chemicals, Inc.

# Organic Colors



By AARON PERMUT\*

**M**ANUFACTURERS of organic pigments are sensitive to new trends in the paint industry. Although they have supplied red toners and phthalocyanine pigments for many years, developments since World War II have made their products assume a more important role in the protective and decorative coatings industry.

The use of organics were very limited in oleo-resinous paints; but the upsurge in latex paint production has put the spotlight on organics. Alkali-fastness and high tinting strength are absolute requirements of latex colors, and only organics can meet these specifications. Excellent light fastness is also expected of paint pigments, and today's organics fill the bill.

The relatively high prices of organics (as compared to chrome yellows, chrome greens and iron blues) formerly forced them to take a back-seat in the paint plant; but performance currently is the keynote, and here is where they shine.

Consumer demand for bright colors in automobiles and appliances has also been an important factor in the increased use of organic pigments in industrial finishes. The black car is fast disappearing from the American road, and the white kitchen may soon be a thing of the past.

A look at the paint formulator's organic pigment repertoire finds something old, something new, something borrowed and phthalocyanine blue.

\*Mr. Aaron Permut is chief chemist of Aula Chemicals, Inc., Elizabeth, N. J.

## The Author

Mr. Permut is chief chemist of Aula Chemicals, Inc., Elizabeth, N. J., manufacturers of resin emulsion printing colors for the textile industry. He was formerly research director of the Pigments Div. of the Sun Chemical Corp. Mr. Permut is also a consultant on organic pigments and pigment dispersions. His clients include foreign and domestic pigment manufacturers.

## Red Pigments

**Lithol Reds**—Used for many years in industrial finishes and trade sales enamels, the lithols are still very important to the paint chemist. Offering a wide shade range (from light red to maroon), they are the most versatile of the organic reds. They are brilliant in shade, bleed only in the strongest of solvents, and blend well with inorganic yellows and molybdate orange. Although they are not recommended for outdoor exposure, they can be used in interior paints and lacquers.

Being non-toxic, they are ideally suited for toy enamels, pencil lacquers and appliance coatings. They bake well and have low reactivity with drying oils and synthetic resins. Lacking alkali or soap resistance, they cannot be used in emulsion systems. Their relatively low price maintains their position as the most important class of organic pigments for the paint industry.

**Toluidine Reds**—When light-fastness, opacity and brilliance are required of a red pigment, the toluidines are in order. Used for many years in industrial finishes (fire pumps, water tanks, automobiles, sign paints, etc.), toluidines are more important today than ever. Extremely resistant to alkalis, they are an ideal red for latex paint. Although they are not high in tinting strength, they are light-fast even in dilute tints. They are washable, non-bleeding in dry oils and VM & P naphtha, and non-reactive in paint vehicles.

For many years available as dry and flushed colors, most organic pigment manufacturers offer them now as water-dispersible pastes for latex paint. They range in shade from light red to maroon, and are moderately priced considering their excellent chemical properties.

**Paratoners**—One of the earliest commercial organic pigments, paratoners are still widely used in industrial finishes. They range from light to deep reds and their excellent light-fastness and blendability with inorganics has made them important in industrial applications. They are used on trucks, tractors, fire-engines and other automotive applications where striping is not required. They bleed in lacquer solvents, and do not have good light-fastness in tints.

Although they are not good for soap and alkali fastness, their low price keeps them active in the market for industrial applications.

**Permanent Red 2B** — Introduced as "Watchung" Red, this pigment is now produced by a dozen organic pigment manufacturers. Similar in top-tone to a deep toluidine, it is bluer in undertone and higher in tinting strength. In addition to its excellent light-fastness, it is a non-bleeding and high baking "blood" red. Although priced somewhat higher than toluidine, its lack of bleed and permanence make an important place for it in industrial finishes, particularly in striping lacquers for exterior application.

**Fire Red** — is a light-fast, brilliant scarlet with good alkali fastness. It is used in industrial finishes where a permanent yellow shade red is required.

**Lithol Rubine** — When blended with molybdate orange this pigment can be used as a shade match for toluidine toner. But lacking the alkali-resistance and light-fastness of toluidine, its use is limited to toy enamels, Christmas tree decorations and other specialty finishes where its transparency is required.

**Alizarine Red** — Known for many years, Alizarine Red (Madder Lake) has never before been an important paint pigment. Although a high priced pigment, its excellent light-fastness and alkali stability now recommend it for latex paint. Offered by several manufacturers as a water-dispersible paste, it is a brilliant, bluish-red which is popular as a "decorator" color.

**Naphthol Reds** — Formerly considered too expensive for the paint trade, several naphthol reds and scarlets are now being sold as water-dispersible pastes for latex paint. They have all the requirements necessary for emulsion systems and allow the paint formulator a wide range of shades to choose from.

#### Maroon Pigments

**BON Maroon** — The earliest of the permanent maroon pigments, this color is still important in the industrial field. Finding its main outlet in the automotive industry, it also finds application in nail lacquer as a "certified" color. Used extensively in deep-tone oil flats, its sensitivity to alkali precludes its use in emulsion paints.

**Thio-Indigo Maroon** — This is the most important of the permanent maroons in the automotive field. High in price but solvent and alkali-proof, it is the criterion for excellence in exterior maroons. It is frequently modified by BON Maroon, Toluidine Maroon and Toluidine Reds to lower the pigment cost of the finish and still maintain excellent permanence.

**Burgundy Lake** — Once an important color in the artificial leather industry, this pigment finds some application in wood stains. It is a bordeaux with limited light-fastness and poor bleeding characteristics.

#### Yellow Pigments

**Hansa Yellow** — Used for many years in water paints and as "taxi-cab" yellow, the Hansa Yellows have come into their own in latex paint application. Light-fast, opaque, high in tinting strength and alkali-fast, they are ideal colors for emulsion paints. Both the G and 10G shades are used, corresponding to lemon and primrose in the chrome yellow range. They are sold as water-dispersible pastes and dry colors, the former being preferred by most paint formulators.

**Green Gold** — Introduced about 3 years ago, this pigment has already made an important place for itself in the industrial finish picture. It combines the desirable features of light-fastness and extreme transparency allowing it to be used in metal decoration to simulate plating. Novelty finishes take advantage of its brilliant shade and unusual properties; costume jewelry finishing is one of its more important outlets. It is fairly expensive and low in tinting strength; but it is non-bleeding in all solvents and has excellent baking properties.

#### Orange Pigments

**Permanent Orange** — Dinitroaniline orange has had a limited use in the industrial paint field for many years. Related chemically to the paratoners it has the same permanence and opacity with added alkali resistance. It is used in combination with inorganic yellows and oranges to improve their brilliance. It has found application in toy enamels, pencil lacquers, sign paints and awning stripes.

**Ortho Orange** — Lacking the alkali-fastness of permanent orange, this pigment offers similar light-fastness at lower cost. Its bleed in lacquer solvents limits its use to non-striping applications such as tractors and truck bodies, in combination with molybdate or chrome orange.

#### Green Pigments

**Pigment Green B** — This color has been used for many years in water paints. Then deep-tone flats popularized it as a "decorator" color. It is an olive green which has found wide application in latex paints because of its permanence, washability, alkali-fastness and low cost. As a water dispersible paste it can be incorporated into latex paint, permanent in all dilutions.

**Phthalocyanine Green** — This is the most permanent and chemically resistant green pigment available to the paint chemist. Its high price limits its use to applications where permanence in tints, alkali stability and non-reactivity with paint vehicles cannot be matched by cheaper pigments. It is non-bleeding in solvents, non-toxic; available dry, flushed or as a water-dispersible paste.

#### Blue Pigments

**Phthalocyanine Blue** — Introduced more than fifteen years ago this pigment found its first use as a tinting blue which was permanent and had good can stability. It suffered from several deficiencies, however. It was hard to grind, high in price and it crystallized in aromatic solvents.

Each of these difficulties has since been remedied. Present-day colors are amenable to 3-roll mill grinding; and flushed colors in most paint vehicles are available. The tinting strength of the pigment has been increased, bringing its cost closer to inorganics. Non-crystallizing pigments have been developed that have perfect stability in paint and lacquer solvents.

Phthalocyanine blue is non-reactive, alkali-fast, non-bleeding, non-toxic, and permanent in all tints. It is currently being offered as a water-dispersible paste for latex paints. It also finds wide application in the automotive field for permanent and non-bronzing finishes.

**Indanthrene Blue** — When permanence is required of a transparent blue then Indanthrene Blue is the logical choice. Where Phthalocyanine fails in jettness of massstone and transparency, this pigment fills the gap. It finds its major use in automotive finishes and industrial specialties. It is non-bleeding in lacquer solvents and takes high baking temperatures.

Having determined which of the numerous organic pigments are compatible with his formulation and specifications, the paint chemist has solved only half his problem. He must still decide whether he wants a dry color to work with or whether a dispersed pigment can do a better job for him.

Except for unusual cases organic pigments are soft grinding colors requiring one or, at most, two passes on a 3-roll mill. But a paint plant set up for white paint may find it inconvenient to grind small batches of colored pigments on their busy mills, and prefer to use pigment dispersions. For these cases the manufacturers of flushed colors have given the paint formulator a wide field to choose from. Organic pigments are flushed in linseed oil, ester-gum varnish, medium-oil alkyds, and other oleo-resinous vehicles.

#### Water Dispersible Pigments

As previously noted, water dispersible pigment pastes have solved this problem for the water phase paints. In general they consist of 20-30% of organic pigment, 1-2% of pigment dispersing agent, very small amounts of anti-fouling additives, and the balance water. They come as water-thin slurries which can be mixed directly into latex-based oil-in-water emulsions, with

out grinding. They develop their full tinting strength in the paint in a few minutes, and are stable to the alkaline conditions of the paint system.

Some care must be taken in selecting the proper water dispersions as they represent a fairly new type of product in the paint makers' hands. The following characteristics should be demanded in a good water-dispersible paste:

1. **Non-skinning:** the protective colloid used in certain pastes cause a surface skin which is objectionable and can cause trouble if not removed.
2. **Non-settling:** although a certain amount of settling is unavoidable in a low-viscosity pigment system, this settling should come only after long standing and should be of the "soft" variety. Subsequent mixing before use should resuspend the pigment and not affect the tinting strength of the dispersion.
3. **Non-seeding:** the paste should be free of pigment agglomerates or "seeds" which will not disperse by simple mixing, causing smearing under a brush and poor color value development.
4. **Low wetting-agent content:** Pastes containing excessively high amounts of surface active agents may impart poor washability to a paint film. Pastes should be tested for this feature which may cause paint failure.
5. **Uniformity** — Most water-dispersible pastes are sold at standard pigment content and standard strength. Routine checks should be made on the "solids" content of paste shipments; and standard brush-outs should be made to check tinting strength and shade uniformity.
6. **Containers** — Pastes should be shipped in non-rusting containers, treated with anti-fouling agents, and protected from freezing. A perfectly good paste may become completely agglomerated and useless as a paint pigment if it has frozen enroute from the manufacturer.
7. **Evaporation** — Containers should be kept well-sealed to prevent evaporation. When evaporation occurs, dry color clings to the container walls and may fall into the paste causing specking of the paint. Loss of water will also increase the pigment content of the paste and cause off-shade batches. Many paint manufacturers have found that purchasing the pastes in 5-gallon kits and using the entire contents of the can, has solved this problem.

At one time organic pigments were considered specialties in the shelf-goods field, to be used only for a few tinting bases. Today they represent important raw materials with which the paint chemist must become thoroughly familiar. The emphasis on deep-tone shades in interior decoration has accelerated the use of organics in house paints where they are newcomers to the trade.

The application of organic pigments in the paint industry is a matter of close cooperation between the paint formulator and the pigment supplier. Trial and error lead to positive progress where both the customer and manufacturer are working toward the same goal. The paint industry offers a broad market for the organic pigment manufacturer. You may be sure that his research facilities and technical personnel are geared to give it excellent service.

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## TITANIUM PIGMENTS

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Other developments include a general purpose rutile type pigment which combines ease of mixing and grinding with exceptional whiteness and whiteness retention plus medium resistance to chalking, and another rutile type which provides whiteness and whiteness retention features plus exceptionally fine dispersibility and high chalking resistance.

### Selection

In the field of latex paints, titanium pigments, because of their chemical and physical stability offer no unusual problem. However, preference of paint manufacturers is usually a rutile type of titanium dioxide which combines ease of dispersion and suspension in latex systems with outstanding color and hiding power.

Although considerable extender is usually required with titanium dioxide in latex paints, rutile-calcium pigment has not been utilized fully in this type of paint. This is thoroughly understandable because of the incompatibility of calcium sulphate with water vehicle systems, especially those containing casein. Careful selection of emulsifiers and stabilizers is foremost among the factors which enable the formulator to utilize rutile-calcium pigment in this type of paint and take advantage of its fitness for the extended pigmentations needed.

For other new types of coatings, the choice of the type of titanium pigment is usually not a complex one and is governed naturally by the most important qualities desired in the coating.

Generally, with few exceptions the different types of titanium pigments maintain their relationship in properties such as whiteness, tone of tint and chalking resistance in the newer vehicles. Thus where durability on exterior exposure is the prime consideration, whether the vehicle be an older type of varnish or the latest synthetic resin, first choice is usually the most highly chalking resistant rutile pigment. But when the nature of the system is such that durability as between the most highly chalking resistant and a multi-purpose pigment is secondary to other properties such as color, the multi-purpose pigment may be first choice.

To summarize, the trends outstanding in the titanium pigment picture during the past few years are:

Emergence of the rutile crystal structure as foremost because it best functions in the essential effects of a white pigment namely to whiten, brighten, opacify and protect.

Continued wide adaptability to all types of coatings through improvements in dispersibility, hiding, color stability and chalking resistance.

Expansion in production facilities to meet increasing demand occasioned by the versatility of these pigments.

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## WHITE LEAD

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of a host of others possible salts of lead must be worked out by the pigment chemist working in cooperation with the paint formulator. This work is going on and the future will bring forth new and special applications of white lead pigments to the paint industry.

In closing, lead pigments should be considered and studied from the standpoint of their chemical functional abilities. The selection of the proper composition and quantity of a lead compound to satisfy film stability should be given more attention by the paint chemist. One simple example might be—basic lead compounds will react with all the acidic break-down products, caused by vehicle decomposition during film weathering, resulting in insoluble compounds of lead. In many cases, the retarding softening and subsequently liquefaction of the film will reduce water sorption and subsequently prevent blistering. There are a number of lead compounds or pigments from which the paint chemist may choose for study to improve the life of paint films.

# Aluminum Pigments



By DR. ALEXANDER F. KNOLL\*

ALMOST everyone tends to follow the well-known path. Occasionally someone looking for a better path goes off into the rough, contends with difficult progress, and clears a new path which others later follow.

Such a pioneer was Professor E. J. Hall, founder of *Metals Disintegrating Company, Inc.* and inventor (U. S. Patent No. 2002891) of the paste process for the manufacture of aluminum and other metal flake pigments.

Because the policy established by Prof. Hall of searching for the new and still directing work of the M.D. laboratories, improved types of the established pigments and others of entirely different characteristics rapidly appeared. In the course of seventeen years since the Hall Process has been in commercial use, the list of aluminum pigments available to the coatings industry has increased from two or three to approximately twenty-four. This relatively large number of pigments is a result of a realization on the part of aluminum pigment technicians that the modern coatings industry demands specialized products each designed to accomplish a specific result.

## Recent Developments

Within the current year, three new aluminum paste pigments have been offered by *Metals Disintegrating Co., Inc.* to the protective and decorative coatings industry.

One of these is a leafing paste pigment<sup>1</sup> of the standard lining grade and is designed to emphasize the most

### The Author

Dr. Knoll has been a member of the technical staff of *Metals Disintegrating Co., Inc.*, since 1941. Prior to that time he was a member of the teaching staff of Columbia University and of the staff of a New York consulting laboratory. He has published many works in the surface chemistry of metal flake pigments, mineral flotation, and fatty acids.

desirable properties of this grade in the formulation of maintenance aluminum paints, particularly those put up in ready-mixed form.

Two grades of non-leafing aluminum pastes<sup>2</sup> have also been offered. Each of these pigments is designed to do a specific job and for which it is best suited. The standard lining type finds its best use in metallescent finishes whereas the fine lining grade is designed specifically for hammer and aluminum enamel finishes.

All three grades are the result of changes in the technique of the Hall Paste Process to permit the production of more uniform size flake particles. As a result of the uniformity and, as a result of the practical elimination of superfine particles, these three pigments are characterized by the highest light reflectance permitted by their class and also by the clear bright appearance of their films.

In the new standard leafing grade<sup>3</sup> particle uniformity and reduction of superfines have permitted the offering of a pigment of higher water covering and hiding without a reduction in total light reflectance which charac-

terizes the common types of high covering aluminum pigment. The exposure resistance of the standard lining grade has also been improved.

The lower apparent density of this pigment yields a paste of improved resistance to settling in storage. The high pigment volume results in soft settling paints with easy redispersibility. Dispersion of the paste in vehicles has been greatly improved so that time and power expended in this effort is materially reduced.

In comparison with the usual standard lining grades, this pigment yields paints of higher viscosity. This feature permits the formulation of paints of reduced solids content with good flow and hiding.

The development of two new non-leafing grades of aluminum paste<sup>4</sup> was predicated by the need for an aluminum flake pigment whose important properties, leafing character, particle size and flake thickness, would result in satisfactory performance in metallic enamel finishes.

The pigment should be absolutely non-leafing. Leafing or floating will cause unwanted bright particles to appear on the surface of the film and give trouble in dispersion such as agglomeration with other pigments.

## Seeding

In general, the coarser pigments yield a brighter appearance than do the fine. The finest pigments tend to yield a muddy gray film appearance of less metallescent character. The coarser pigments, however, unless great care is taken in their manufacture,

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\*Dr. Alexander F. Knoll is Chief, Sales Service Laboratories of the *Metals Disintegrating Co., Inc.*, Elizabeth, N. J.

# Extender Pigments



By PEYTON WHEELER\*

IT CAN be truthfully said, that at last, extender pigments have come into their own. It is true that up until recent years extenders have enjoyed the dubious reputation of being the unloved step children of the paint industry.

Within the last two decades these materials have acquired their rightful place in our industry.

Too many technicians have thought them to be nothing more than inert fillers, or cheap substitutes for a better thing.

In the early days of the paint industry, such a reputation was properly, though undeservedly placed upon extenders because of the irresponsible acts of some manufacturers. An example was the substitution of barium sulphate for lead. People bought paint by weight in those days and so far as they knew that was the principal criterion.

There are countless instances like the above that made it hard for any reputable producer of extenders to get a strong foothold in the industry.

Such an unsavory reputation was not conducive to any great amount of research expenditures. *But the worm turned.* Paint chemists began to wonder why paints, even though they were purposely "filled" for cheapness sake were good performers.

This curiosity led to inquiry,—inquiry led to experimentation—and experimentation proved what is a definite fact today—*extender pigments* are as important to the formulator and manufacturer as are vehicles and prime pigments.

Usage decrees that the tinting and hiding pigments shall be termed prime

## The Author

Mr. Wheeler became associated with the paint industry in 1933. At that time he became connected with the paint department of the Sinclair Refining Co. Later he held positions with Steen Research Laboratory (Sears Roebuck) and the Jones Blair Paint Co. in Dallas. Prior to his connection with Edgar Brothers Co., he headed the protective coatings section of the Southern Research Institute in Birmingham, Alabama for four years, where he did considerable work on aluminum silicate pigments. He now heads the paint program at Edgar Brothers Co. in McIntyre, Ga. He is a member of the American Chemical Society and the ASTM.

pigments, but extender pigments too are prime factors in the excellent performance of paints today.

The advance brought about by the curiosity of these earlier technicians have completely changed the status of extenders.

The manufacturers or producers of extenders have themselves awakened to the fact that their product, though cheap insofar as monetary value is concerned are not cheap in their performance. Look at any of your paint journals today, all producers are advertising the merits of their products.

Not so many years ago the taking of a full page ad to extol the virtue of a "filler" or "inert" was unheard of. Today the producer uses full pages, in color, to advise of technical advances made by him in producing his extender pigment. Because the advice is the results of careful research, it is so recognized and taken as authoritative by the paint makers.

## Interest Spurs Studies

What are some of the reasons for the great strides made in the extender

pigments industry? I believe they can be simply summarized as 1. Curiosity, 2. Experimentation, and 3. Education.

Both the paint maker and the producer of pigment become curious as to the reasons for extenders being beneficial.

This resulted in research efforts being made to find out why, and when so informed, to improve what then existed.

With this knowledge available, the producer was forced to go into a program of education through any means available to prove to the paint industry that what had formerly been a material with a role of minor importance has now become of great stature in the industry.

An awakening of any magnitude is bound to bring about advances in technique. This is true of the extender industry.

Formerly the extenders were literally dug up and put in the paint can but today that is impossible. Refining is a must.

While the extender industry has been making great strides so have the other paint component groups. Any product that goes into a good paint today must be good. These other groups with their great energy have forced the extender producers to keep pace.

## Advances

During the past decade there have been several grand advances in the technology of extenders.

1. The cognizance of the importance of particle size distribution and the emphasis laid upon the placing of the information into the hands of the formulators.

2. The vast majority of those that use extenders are becoming more

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\*Peyton Wheeler is head of the paint research section of the Edgar Brothers Co., McIntyre, Ga.

# Pigments for House Paints



By DR. W. G. VANNOY\*

**P**AINTS as made for exterior use on wood defy classification by composition in a manner which will predict satisfactory results. Accordingly, the use of long term exposures under the actual conditions of usage are highly desirable in order to establish preferred compositions and assure in so far as possible that the performance characteristics desired will be realized.

Conditions throughout our country vary widely and compositional changes may be required for best results in individual areas. For example, greater tendencies toward checking and cracking type failures have been encountered on the West Coast and in the Southern part of Texas. Tendencies toward dirt collection and/or mildew have been observed in New Orleans, Louisiana, and Houston, Texas. Blistering and peeling are problems which cannot be overlooked especially in the Northern states. A very considerable amount of exposure work is required in order to develop compositional and resultant performance data which might be expected to point the way to compositions which will give satisfactory results under wide conditions of use.

## Historical

As recorded in a paper on "House Paint Progress in the United States of America" which was prepared for

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## The Author

Dr. Vannoy, a chemist in the sales service division of the Du Pont Company's Pigments Department, has been engaged in research work for the company since 1927 and has been active in work with technical and paint trade organizations.

He was graduated from Coe College in 1922 with a bachelor of science degree in chemistry. He continued his studies at Cornell University, from which he received his doctorate in physical chemistry in 1927.

That same year, Dr. Vannoy joined Du Pont as a research chemist in the Philadelphia laboratory of the Fabrics and Finishes Department. In 1929 he was transferred to the Chemical Department at the Experimental Station near Wilmington, Del., where he continued as a chemist and in 1931 he moved to the pigments plant at Baltimore, Md. The following year he was transferred to the Newport, Del., plant as a research chemist and has advanced in that work there since that time.

During his career with the Pigments Department, Dr. Vannoy has written and collaborated on numerous technical papers dealing with pigments and paints. He has also been active with the American Society for Testing Materials and has spoken before many technical meetings, production clubs and other organizations.

He is also a member of the Highway Research Board, the American Chemical Society, Gamma Alpha graduate scientific fraternity, Phi Kappa Tau fraternity, and the Cornell Club of Wilmington, Del.

presentation at the First International Technical Congress at Paris, France in 1947\*\*, the history of exterior paints shows that the composition and development of these paints has been controlled to a very large extent by developments in the pigment industry.

White lead and various colors in oil were the only paint materials available during the first half of the 19th century. In the United States white lead was made first at Philadelphia, Pennsylvania, in 1804. The commercial manufacture of zinc oxide was started first at Bethlehem, Pennsylvania, in 1853. Lead and lead-zinc were the only white paints available to the consuming public for many years. Although lithopone was made commercially at Newark, New Jersey, as early as 1892, ready mixed lithopone paints were not promoted in the trade until 1924. The first commercial titanium dioxide was produced at Niagara Falls, New York, in 1921 as titanium barium pigment. In more recent years the manufacture of titanium dioxide type pigments has proceeded at a continually increasing rate. High hiding rutile titanium calcium pigments were placed on the market in the early part of 1941. Further, at this time a high hiding rutile modification of titanium dioxide was made at Edgemoor, Delaware, was introduced to the trade. By virtue of

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\*\*Vannoy, W. G., and Broeker, J. F., Official Digest No. 280, 368 (May, 1948).

# Metal Protective Pigments

## Red Lead



By C. J. VANDER VALK\*

**I**NTENSIVE research and comparative service testing by the *Lead Industries Association* has resulted in the development of many outstanding red lead base metal protective primers for a variety of applications. Formulations are now available to cope with a wide range of exposure conditions and to satisfy diversified technical and economic demands.

### Red Lead—Linseed Type

Where thorough surface preparation cannot be assured and where quick drying is not a requisite, red lead-linseed oil paints are still found most effective. The penetrating quality of linseed oil enables wetting of the underlying metal which results in intimate bonding of paint and metal despite the presence of small amounts of surface corrosion products. The most widely used of this type contain straight red lead pigmentations. They are well suited as shop coats or field applied priming and intermediate coats for structural steel exposed to atmospheric conditions. The reliability and long protective life of this type of paint has resulted in its wide adoption by state and federal agencies for initial and maintenance painting of bridges, tanks, steel building members, concrete reinforcements and other applications. Most industry groups or associations interested in the

### The Author

Mr. Vander Valk directs research and technical service programs on corrosion inhibitive and other type lead base paints at the Lead Industries Association. Before joining the Lead Industries Association he spent several years directing research on synthetic resins. He holds a degree of Bachelor of Chemical Engineering from Pratt Institute.

preservation of iron and steel recommend red lead base paints. *The American Water Works Association* and the *American Association of State Highway Officials* are examples of such groups.

### Role of Vehicles

In certain cases, for reasons of expediency or to meet production schedules the use of faster drying anticorrosive paints is necessary. This requirement has been successfully met with the development of carefully designed red lead base formulations utilizing synthetic resins in the vehicle.

In recent years, a wide variety of synthetic resins has been developed and used in the formulation of protective coatings. These resins possess many special properties, and by their judicious use, and with due consideration for environment and surface condition of the metal, coatings can be formulated to

cope with unusual exposures. Examples of the synthetic types now used in red lead base paints are the alkyds, phenolics, coumarone-indene, chlorinated rubber, and vinyls. Such vehicles provide fast-drying metal protective paint coatings which successfully combat a wide range of highly corrosive environments.

### Exposure Factor

The intended exposure conditions generally dictate the vehicle composition of the primer. For example, steel to be immersed in water should be coated with a paint system possessing a high degree of impermeability and the greatest possible resistance to the softening action of water. For interiors of fresh water tanks, for portions of locks and dams immersed in river water, for air conditioning conduits, as well as steel surfaces subjected to very humid conditions, practical field testing indicates that red lead-phenolic or red lead-vinyl resin types provide excellent service. For railroad cars, window sash and other factory fabricated steel units whose surface preparation and paint application can be carefully controlled, quick drying red lead paints of the alkyd resin types give dependable and economic protection.

It is the policy of the Lead Industries Association to encourage the proper and economical use of lead products of all types. The Red Lead Technical Committee, comprised of the red lead and  
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## CARBON BLACKS

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viscosity. This means a lower color black must be employed for these special cases since the higher color blacks would give high viscosity.

Where high loading of a black is required, in order to harden the film for sanding, such as a primary undercoat, a very low oil absorption black of high loading capacity should be used, such as furnace blacks of the 83 millimicron type.

The importance that furnace blacks have assumed in the paint field cannot be overstressed. This is due to their low oil absorption, blue tone and economical price. They are a natural for blue tints and high loadings, Table I.

### Characteristics

In this section we will consider durability, non-fading, non-infra red reflecting, non-bleeding, drier adsorption, and other considerations.

The formulator also requires other data and assurances with regard to the carbon blacks described above.

The durability of carbon black in an outdoor finish against light and weathering exposure is unexcelled by any other pigment. This has not only been proven by our findings but also by several generations of users. Due to its ultra fine particle size, its strengthening effect and shielding from ultra violet light, it has such a unique combination of properties that one black justly earned its name years ago, "The King of Pigments".

All carbon blacks are absolutely non-fading! Apparent fading has always been traced to breakdown of poorly formulated binder.

Carbon blacks are totally insoluble and will not bleed due to solution in any solvent or any other media.

All carbon blacks as well as carbon bearing pigments are non-infra red reflecting. They cannot be used in special finishes where infra red reflectance is required.

The channel blacks do adsorb driers, soluble dye toners and color bodies from various types of varnishes and lacquers respectively. However, compensation can be made very simply for these adsorptive effects by additional amount of either driers or toners respectively.

Carbon blacks are not affected by alkalis and acids normally encountered.

Carbon blacks are not altered by heat until oxidizing—burning temperatures are reached. They are completely heat stable under normal conditions. Fire will destroy carbon blacks.

The particle charge of carbon black

**Table I**  
**Type Blacks and Typical Application**

(Channel)	Automotive, original and refinishing—High Color
High Color (10 to 13 millimicrons)	Industrials—High Color Shelf Goods—Specialties—etc.
Medium High Color (18 millimicrons)	Utility Finishes—Medium Color Industrials—Medium Color Shelf Goods—Telephone Finish—etc.
Regular Color (21 to 25 millimicrons)	General all-purpose black, i.e., trim paints—drum paint or enamel—chassis paint—ship paint—bridge paint—steel lath paint—low cost industrials—tinting (brown tone)—etc.
Type (Furnace Blacks) Lower Color (28 to 83 millimicrons)	Machinery grays—chassis paints, priming under coats—tinting (blue tone)—tinting bases—olive drabs—etc.

**Table II**

Form	Base	
Chip	1/2" Nitrocellulose	Maximum jetness for lacquers
Chip	1/2" Nitrocellulose	Medium high color for lacquers
Paste	1/2" Nitrocellulose	Maximum jetness
Chip	Vinyl resin	For coatings and plastics available in several grades of carbon black
Powder	Terpene resin	For coatings—available in several grades
Paste	Alkyd resin	Maximum jetness paste
Chip	Ethyl cellulose	Maximum jetness for lacquers

is essentially negative.

Carbon blacks as a class are organophilic. This is modified by the Carbon Oxide Complex (CxOy) content. The higher the CxOy content, the more hydrophilic.

### Dispersion Aspects

The protective and decorative industries are primarily interested in the dis-

persion of carbon black. In working with carbon blacks particularly the higher color such as "Neo Spectra Mark II or Neo Spectra Beads\*\*" particle diameter in the order of 13 millimicrons and a surface area of 22.5 acres

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\*\*These are products of the Binney & Smith Company.

## EXTENDER PIGMENTS

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and more curious as to their applicability.

4. Industry wide research is assuming a more important aspect. 5. Better production information is unfolding. A New Production Technique: a. Jet milling and micro-pulverizing techniques are improving. b. Particle coating techniques have been improved. c. New combinations of extenders are being found efficient.

5. The particular values of all of the known extender pigments have been carefully determined and placed at the hands of the paint maker.

6. Better knowledge of the performance characteristics have been obtained and disseminated.

7. Better knowledge has enabled: a. Better pigments to be produced b. Better use to be made of existing pigments.

8. The Paint Industry as a whole is now deeply interested in the improvement and use of extender pigments.

Talcs, Diatomaceous Earths, Aluminum Silicates, Carbonates, and all other such extender pigments are now recognized as necessary components of good paints.

## ZINC PIGMENTS

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troublesome defect, has also been largely eliminated through the selection of suitable alkyd resins, driers and diluents.

### Flat Wall Paints

The increased use of alkyd resins in flat wall paints resulted in the resin manufacturers producing special alkyds for flats dissolved in the usual and in the "odorless" solvents. The alkyd resins generally have been formulated to be compatible with zinc oxide, since it has been found that, as in alkyd enamels, the inclusion of a small percentage of fine particle sized zinc oxide in the flats contributes desirable film properties. The use of fine particle sized zinc oxide for five to ten per cent of the pigment improves the washing characteristics of the paint film and markedly reduces any yellowing tendencies.

### Lithopone

The long-time popularity of lithopone has continued, in spite of a slight disadvantage, versus the titanium dioxides in the cost of a unit of hiding. Because

of the many desirable properties that this zinc sulfide pigment contributes to paints, it continues to be used in a large variety of products.

The high consumption of latex emulsion interior wall paints continued during the year. The sensitivity of latex emulsion vehicles to electrolytes limited the paint technician to the pure titanium dioxides and the zinc sulfide pigments for his white hiding pigment. Lithopone imparts many desirable properties to an emulsion paint. Up to one and one-half to two pounds is used in a gallon of latex paint, even though its use may increase costs a cent or two. In whites and light tints, titanium dioxide is usually the principal white opaque pigment, but in the deep tones and colors, lithopone may be the only white hiding pigment used. Beneficial effects on packaging, flow, and application, drying and curing, flooding and floating of colors, uniformity of the sheen and of the color of the dry film, are attributed to lithopone. Some exterior latex paints for use on stucco, cement shingles, and concrete, were produced. These paints possess desirable properties except for a tendency to soil, chalk and fade excessively. The industry is seeking latex emulsion vehicles for use in exterior paints, which are stable to zinc oxide, so it can be included in the pigmentation to overcome these defects.

Lithopone, because it tends to produce a durable, wear-resisting film, continues in considerable favor as a pigment constituent of floor and porch enamels, hard surface floor covering paints, and of traffic or zone marking paints. The more general use of reflecting glass spheres in traffic paint developed a demand for the increased strength and durability contributed to the paint film by zinc oxide and lithopone. Lithopone continued to be used in many types of paints because it contributes one or more of the desirable properties mentioned previously under latex emulsion paints. The experienced paint technologist frequently resorts to lithopone when other means fail to eliminate an undesirable characteristic in one of his products. For instance, non-uniformity in a deep-tone flat. Easy wetting, high dispersion, non-settling, and other special grades of lithopone continue to be available for both the solvent and the water emulsion type vehicles.

### Luminescent Pigments

The zinc and cadmium sulfide luminescent pigments continued to be available in both the phosphorescent (glow in the dark) and the fluorescent (glow when activated by black light) types. Paints prepared with these pigments are used for novelties, military, advertising, theatrical, and identification

purposes. There has been no major change in these products during the year, except for an occasional new novel application.

## Metal Protective Paints

Metal protective paint, pigmented with zinc dust and zinc oxide, is generally accepted as the outstanding primer for galvanized metal and is specified by the Federal Government. The adoption of zinc dust-zinc oxide paint for protecting the ungalvanized ferrous metals continued to increase. Zinc dust-zinc oxide-phenolic varnish primers now are being used by the U.S. Army Corps of Engineers on the gates of the flood control dams in the Mississippi and Ohio Rivers, and also has been adopted as a metal primer by some of the large electric power companies. The "Zinc-Rich" type that has attained popularity in Australia and England, especially for application on ship hulls and metal surfaces subject to water immersion, was introduced in this country. This type of zinc dust paint is prepared with synthetic resin vehicles of low solid contents, so that the dried film contains only about five per cent of binder and ninety-five per cent zinc dust. The high concentration of metallic zinc particles results in actual metal-to-metal contact in the film and to the iron surface. The coating thus provides cathodic protection similar to that obtained from the zinc metal layer of galvanized metal.

While the zinc and lead chromates have long been recognized as metal corrosion inhibitive pigments, the use of zinc chromates in metal primers markedly increased during the last world war. In general, zinc chromate primers were specified for equipment for the land, water, and air services. A special metal corrosion inhibitor and base for protective paints, designated as "Wash Primer" was developed during the war. The corrosion inhibitor pigment in this material is a basic zinc chromate of low water solubility, zinc tetraoxochromate. The favorable results obtained by the armed forces has led to the industrial use of this material. Its application is not restricted to ferrous metals, but for many types of metal, it provides both corrosion resistance and improved adherence for subsequent protective paints.

While there has not been an increase in the total consumption of zinc pigments by the paint industry, the previous uses of these pigments in various types of protective and decorative coatings have continued and, in general one or another has been found to be a desirable constituent of any new finish. The specific and chemical properties of the zinc pigments assume their continued, general use in organic finishes.

# Metal Protective Pigments

## Zinc Chromate



By HARRY WAKEFIELD\*

**P**ROTECTIVE coating technology has advanced considerably since primers were considered as just another coat of paint or as an aid to visual or mechanical covering of the surface. The present concept of the primer as a most important component of a protective paint system involves the coordination of many factors: pigmentation with inhibitive pigments to prevent or stop corrosive attack on the metals as well as proper choice and balancing of other pigments and vehicle to give maximum adhesion to the metal surface, a good foundation for following coats, a flexible, age resistant, low permeability film, and drying or baking properties to meet the scheduling of its application. In addition, costs must constantly be kept in mind.

Application to ferrous metals is probably still the largest field for metal primers although the increasing use of non-ferrous products require their consideration by paint manufacturers. Zinc yellow based primers for metal use became solidly established during World War II and their use is now commonplace; the advantages of Zinc yellow for primer use include positive inhibiting action, low cost per gallon, low weight and compatibility with a wide range of vehicles.

Zinc yellow, often called zinc chromate, is chemically a basic hydrated zinc potassium chromate; the chromate provides an inhibiting or passivating action to prevent corrosion of the metal surface and prevent the spread of rust from any break in the paint film.

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### The Author

Mr. Wakefield has been with Imperial Paper and Color Corp. since 1930. He was district manager of the Philadelphia Sales office for 3 years and then district manager of the New York Sales office which position he held until the middle of 1947. At that time Mr. Wakefield was transferred to the Glens Falls offices and made assistant general sales manager of the Pigment Color Div. which is his present position.

Prior to joining Imperial, Mr. Wakefield spent 10 years handling sales in the marine paint industry in New York City and along the eastern coast. He was an Ensign in the U. S. Naval Reserve during World War I for a period of two years and prior to that was graduated from the University of Pennsylvania.

### Pigmentation

Probably the best all around recommendation for pigmentation of a primer for iron or steel would be 25% to 50% zinc yellow, by volume, depending on the severity of service, plus some film building or hiding pigment such as zinc oxide, various lead chromates, red lead, red oxide, etc., together with reinforcing pigments, such as the various silicates, especially the flaky and fibrous types (mica, asbestine, talc), etc. Severe marine or high humidity conditions require higher content than inland atmospheric exposure. Suggested amounts would be from 1½ pounds to 3½ pounds per gallon of primer. Typical of such formulations is the Navy 52-P-18 ship primer. Attempts to combine the most desirable qualities

of zinc yellow and red lead have been made, some of which have been successful.

As mentioned above, non-ferrous alloys are requiring more and more attention from the paint industry. Many of these are susceptible to attack by salt water or in industrial atmospheres. Applications involving couples of dissimilar metals are especially critical and require first class protection. Aircraft primers represent the largest volume of such coatings and are typified by the Spec. MIL-P-6889A, which is based on zinc yellow, in an alkyd-phenolic dispersion resin vehicle. The Navy is currently testing an alkyd fortified nitrocellulose lacquer formulation, MIL-P-7962, with the same pigmentation as MIL-P-6889A. Apparently, zinc yellow combines the most desirable level of chromate concentration with sufficiently long term duration; other chromates are either too insoluble to have any beneficial effect, such as barium chromate, or too soluble to have a long life.

### Wash Primers

The wash primers, of which the polyvinyl butyral resin-basic zinc chromate-phosphoric acid type is the prime example, are becoming more and more accepted in industrial use as well as on Army, Navy, and Air Force equipment. More properly called surface conditioners, these products do not replace primers but definitely improve primer adhesion and performance on a wide variety of metal surfaces, both ferrous and non-ferrous; they also permit temporary protection of a surface under high humidity conditions.

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# Pigments For Industrial Finishes



By STANLEY S. MORRIS\*

COLOR has splashed to the forefront of Mr. and Mrs. America's consciousness and they are wielding this new-found tool to achieve previously unknown decorating effects. And this new free use of color represents the greatest current development in industrial finishes, as well as in trade sales paints. The innumerable products of industry are being re-evaluated in terms of the esthetic beauty obtainable through the use of color. Automobiles and furniture, appliances and cans, all are feeling the impact of this new consumer color awareness. Traditional white and black are being replaced by all of the rainbow's many hues, in both pastels and deep-tones. This has given fresh impetus to pigment manufacturers to continue development work of long standing and initiate new projects.

However, in contrast to the picture we find in interior wall paints where water-dispersed vehicles brought upheaval in the other constituents of the finish, no revolution has influenced the main film-formers of industrial enamels such as cellulose nitrate, alkyd-type polyesters, urea and melamine resins, etc. True, other types are making their mark commercially—epoxy and vinyl resins, for example—but they have required no fundamental pigment developments for maximum utilization. While recent advances are not

## The Author

Mr. Morris was graduated from Princeton University receiving a B.S. degree. A Master's degree in chemical engineering was granted him by New York University in 1948. Since that time he has been employed by the Interchemical Corp. in various capacities: research and basic development. At the present time he is connected with the Customer Service Laboratories of the Finishes Division. He is a member of the New York Paint and Varnish Production Club.

of a spectacular nature, they do indicate a steady improvement in the multitude of properties deemed desirable in pigments for industrial finishes, such as ease of dispersibility, resistance to flocculation, chemical and weather resistance, etc.

## Improved Products

At the present time virtually all prime pigments for use in glossy industrial coatings are available in a state so finely divided that the term *grinding* is obsolete, and *dispersion* more truly represents the process being accomplished. Chemical manufacturing techniques, such as precipitation, neutralization, etc., are constantly being improved to afford not only smaller particle size, but also to prevent the formation of pigment agglomerates which are difficult to break up during the milling process into their ultimate particles. In fact, the very process

of dispersion by *flushing* (where applicable) minimizes such formations. Mechanical processes acting on the pigment particles (e. g., micronization, jet milling, etc.) are a further effort on the part of the manufacturer to supply a smaller dimensioned product.

Intensive research on the part of paint manufacturers and the Federation of Paint and Varnish Production Clubs in the field of dispersion techniques is supplementing the efforts of pigment and equipment manufacturers. The importance of pre-mixing and the increased use of wetting and dispersing agents are outgrowths of this work. The process of *aging* a pigment dispersion (especially those in urea or epoxy resins) in order to aid gloss development in the finished enamel, represents a new method.

To aid users of their pigments, which are of an extremely fine particle size (almost dust-like), makers of carbon black are now supplying their product in *pellet* form, for easier, and cleaner handling.

*Surface treatment*, usually a resinous coating, not only aids dispersion but also suspension of the pigment in the finished enamel. To impart such special properties, increasing numbers of inert and color pigments are being treated by this method.

Much of the work along the lines mentioned above and in the remainder of this article is described to some extent in the patent literature, but is just

(Turn to page 52)

\*Mr. Stanley S. Morris is connected with the Finishes Div. of the Interchemical Corp., Elizabeth, N. J.

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## ZINC CHROMATE

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The basic zinc chromate used in these surface conditioners is a different product from the zinc yellow used in conventional primers; basic zinc chromate is a more insoluble, more inert compound than zinc yellow (zinc-potassium chromate) and in conventional primers does not provide the inhibition of corrosion that zinc yellow does. The Navy Spec. MIL-C-15238A is a typical wash primer formulation.

The vehicle problem is daily becoming more and more complicated due to the wide diversity of types and modifications available. The paint manufacturers have a serious problem here to continuously improve the performance of their products with sufficient long term testing to be sure that no undesirable after-effects develop. Some of the resins of excellent chemical resistance have poor compatibility, or poor adhesion or embrittle on aging. The optimum balance between adhesion, wetting, chemical resistances, heat and cold resistance, flexibility, etc., and cost is a fluid thing which every manufacturer must determine for the conditions of service in his market.

### Application

Without intent to disparage the present efforts in consumer education by the paint industry, there is still a definite need for more instruction of consumer education by the paint industry, there is still a definite need for more instruction of consumers (including painters and maintenance engineers) in the necessity of proper surface preparation before applying a primer. Many a primer has received a black eye in the nature of a permanent prejudice against it and its manufacturer because it was not applied over a reasonably clean, grease-free, dirt-free, dry, rust-free surface. The wash primers have helped improve performance on difficult surfaces but nothing takes the place of proper cleaning.

Another very important factor is film thickness. Many times a good primer applied to a properly prepared surface has failed due to application of too thin a film.

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## INORGANIC COLORS

(From page 36)

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standards of green, as light and dark as they may need, they can meet demands without changing stock or increasing inventory.

Each manufacturer is equipped with a Ferndale Green blending chart to which he can refer any time a new Ferndale shade is added. All it takes to revise the formulas is simple calculations.

If testimony as to the quality of zinc yellow as a primer was required, the United States Navy would be a ready and willing "character" witness. The Navy in looking for a tough, long-lasting primer during the last war wanted something that would hold up and perform under the most adverse conditions. They determined that regular zinc yellow could do the job better.

Navy tests showed that a ship using zinc chromate yellow could spend considerably more time in tropical waters than those coated with previously used primers.

The job recently has been to sell the general public on the advantages of zinc yellow as a primer over previously used primer pigments. Zinc yellow pigment is an easy grinding, low cost product and is more efficient in its rust-inhibiting action than any other used for this purpose.

Because it contains most of the factors essential for passivation, zinc yellow can be used as a metal primer for steel, aluminum, aluminum alloys and magnesium alloys. It is soluble enough to release an adequate concentration of inhibiting ions to limit oxidation of metal surfaces. It can also be used in the formulation of trim paints and in impregnating cloth tapes.

In the field of iron oxide pigments, a new line of pure red iron oxides were introduced to the paint industry last year. Unlike other pure reds on the market, these oxides are precipitates, and not calcined. The manufacturer claims the particular pigments are much brighter than other oxides, are finer in particle size, and show sharper gloss retention. They are easy grinding and have excellent suspension properties. Because of their clean mass color, they lend themselves to blending with organics and standard red oxides.

### Production Techniques

When RCI's Brooklyn plant was reconverted in 1938, a new process for manufacturing pigments was introduced. Originally chemical color pigments were produced in batches. Each step in the production of each batch had to be undertaken separately and concluded before a new batch could be begun. Production of each batch took seven days.

In this new system of continuous conveyor belt production, the pigment is constantly precipitated, separated from the water by centrifugal force, and then dried on the conveyor belts and ground. The operation from start

to packaging, takes two hours, resulting in a product of high and uniform quality.

Other processes to provide the paint industry with pigments of uniform and smaller particle size include such mechanical processes as micronization, jet milling, etc.

Despite our rise to prominence in the chemical color field, we feel that the surface has only been scratched. Research and development of new and better methods and products will continue. From where we sit the future in the inorganic pigment industry looks unlimited.

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## ALUMINUM PIGMENTS

(From page 40)

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tend to produce seeds. Seeds are regarded by some as penetration of the paint film by flake particles when oriented edgewise. When it is considered that the average enamel is applied in about 1.5 mils (38 microns) films and that the coarsest non-leafing grades contain from .02 to 1.0% plus 325 (44 microns), this seeding theory appears logical.

The consensus of opinion among workers in the field is that pigments should be just fine enough to cause no seeding and as coarse as possible since the coarsest pigments will present a much larger proportion of their weight as reflective surface and less as dark light absorbing edges.

Accordingly, the process by which this product<sup>5</sup> is manufactured was designed to produce a non-leafing aluminum pigment which meets these requirements to the greatest practical degree.

In a given grade, the coarser pigment yields a brighter appearance with greater flop or high-lighting. The finer pigment in general, irrespective of grade, tends to have greater pigment value.

The finer pigment, because of greater covering capacity, has greater pigment value and tends to give opacity. In the quantities used in metallescent enamels, this tends to lighten and make the base color less brilliant. This is because the coarser pigment in the same quantity, having less hiding capacity, will permit more light to penetrate and be reflected from beneath the paint film. This light will be colored by the base tone but will be dark. The finer pigment, because of greater hiding, will destroy some of this three dimensional effect and give more superficial and lighter colored reflectance of the mass tone.

With these facts in mind, a non-leafing aluminum paste<sup>5</sup> was designed with the fineness and hiding properties of a fine lining grade. At the same

time, uniformity of particle size distribution has been maintained with the elimination of undesirable super-fines within practical limits of control.

The value of the finishes in which the non-leafing aluminum pigments are now being used is definitely established. Their properties in effecting finishes of outstanding beauty and durability are now well recognized. In the light of these facts, the management of Metals Disintegrating Company, Inc. recognizes the importance of continued research and development in this field to extend the usefulness of these pigments not only in the established uses but further in general paint formulations as an auxiliary pigment.

#### Product Designations

1. Product designated MD 515 (Metals Disintegrating Co.)
2. Products designated MD 584 and MD 784 (Metals Disintegrating Co.)
3. Product designated MD 515 (Metals Disintegrating Co.)
4. Products designated MD 584 and MD 784 (Metals Disintegrating Co.)
5. Product designated MD 584 (Metals Disintegrating Co.)
6. Product designated MD 784 (Metals Disintegrating Co.)

## CARBON BLACKS

(From page 44)

per pound are encountered. Regular color channel blacks have a particle size of about 21 millimicrons and a surface area of 14 acres per pound.

These figures indicate that the carbon blacks as a class do not have to be ground to a smaller particle size but the individual particles must be separated from agglomerates and dispersed. One way to picture the difference between dry carbon black and the ultimate available colloidal particles is to visualize the carbon black as it gets to the customer in the dry form as aggregates or bunches like clusters of grapes.

Tearing apart these clusters constitutes dispersion. Keeping the individual particles apart is stability of dispersion. The best results are obtained with the use of equipment capable of utilizing high shear such as 2 roll mills.

Similar principles hold true for ball mills and it has been found that the following ratios produce good dispersions in alkyd systems:

## RED LEAD

(From page 43)

paint industries, conducts extensive research programs through member companies and enters into cooperative investigations with many government agencies and industry groups. The outstanding formulations resulting from these investigations are published from

time to time in a series of bulletins called Red Lead Technical Letters. Paint formulations are included for use under ordinary atmospheric conditions, severe atmospheric conditions (as encountered in industrial, coastal or tropical areas), tidewater exposures and submerged exposures in both fresh and salt water. Proper surface preparation procedures are included for each type of system.

A listing and brief description of Red Lead Technical Letters currently available without charge to the paint industry are included in Table I.

Table I

Red Lead Technical Letter**	Title and Description
No. 3	<i>Red Lead Primers For Atmospheric Exposure</i> Primers for structural steel exposed to mild and highly corrosive atmospheres.
No. 4	<i>Red Lead Paints For Marine Exposures</i> Outstanding corrosion inhibitive paints for marine atmospheres, intermittent immersion and complete submersion.
No. 5	<i>Red Lead Vinyl And Coumarone Type Paints</i> Information on formulation, application and use of two of the latest type red lead corrosion inhibitive paints.
No. 6	<i>Red Lead Paint Formulations</i> Contains 27 specification and newly developed formulations for a wide range of exposures and service conditions.
No. 7	<i>Paint Systems For Hydraulic Structures</i> Paint systems specifically designed for application to dams, water storage tank interiors and heavy industrial equipment.
No. 8	<i>Primers For Railroad Structures</i> High quality corrosion inhibitive primers for railroad bridges and other right-of-way structures.

\*\*May be obtained without charge by writing to Lead Industries Association, 420 Lexington Ave., New York 17, N. Y.

#### Parts by Weight

- 30 Resin Solids
- 15 High Color Black such as "Neo Spectra Beads"
- 55 Solvent

If this paste is not immediately used to make a finished paint it must be stabilized with additional resin to give paste stability. This is important as there is not enough vehicle present in the milling proportions outlined to give paste stability as the surface of the black is not satisfied.

For stabilized paste the following is suggested:

#### Parts by Weight

- 6 Black
- 37 Resin Solids
- 57 Solvent

While the suggested formulations given are good starting points some modifications may be required depending upon the particular resins, solvents and diluents used.

#### Colloidal Dispersion

Colloidal dispersions of carbon black are also available to the industry. The use of these products eliminates the dispersion problems.

Table III

Type of Aqueous Dispersions	Base	Form	Type Dispersing Agent	
Channel Blacks	Water	Paste	anionic	High and regular color—brown tint
Channel Blacks	Water	Paste	nonionic	High and regular color—brown tint
Furnace Blacks	Water	Paste	anionic	Low color range—blue tint
Furnace Blacks	Water	Paste	nonionic	Low color range—blue tint

Many of these dispersions are made on two roll mills such as those used in the rubber industry. By use of this type mill high shear force is achieved and it produces the best possible dispersion of carbon blacks. In other words the best jetness and gloss is produced by the two roll mill.

Examples of organic colloidal dispersion are given in Table II.

Others are available in many different bases and the elimination of the dispersion problem plus the fact that superior finished products can be made with them make predispersed carbon blacks attractive to many people.

#### Aqueous Systems

Aqueous carbon black dispersions are available also. These products are dispersions of carbon black in water plus dispersing agents. They are of tremendous interest in all latex systems especially for tinting. They are designed to have excellent stability and compatibility. Some are made with anionic agents and others with nonionic agents. The advantages are the elimination of the dispersion problem, clean handling and complete readiness for use without additional grinding. This means that they can be added to a finished system which needs to be tinted by simple agitation.

Examples of aqueous carbon black dispersions are given in Table III.

Besides being used in latex systems they are being used in almost any aqueous system imaginable.

#### Handling

It is important to keep in mind that tremendous surface areas are developed when carbon blacks are truly dispersed. Aqueous dispersions of carbon black

should be considered true colloids and normal care exercised in using them for pigmenting and tinting to avoid colloidal shock. It is important that:

(A) Marked temperature changes in the system be avoided. In other words, a cold latex should not be added to a warm aqueous carbon black dispersion or vice versa. All ingredients used in the system should have approximately the same temperature.

(B) In some cases the dispersion first should be thinned down slightly with water to the approximate viscosity of the latex. Any such addition of water should be in small increments and thoroughly mixed in after each addition.

These precautions will minimize colloidal shock and the aqueous carbon black dispersions will mix readily to form homogeneous systems free from lumps and undispersed black.

Most aqueous carbon black dispersions can be added to the latex system in many different ways:

- (A) To the grinding base
- (B) To the ground base
- (C) To the latex before it is incorporated into the system
- (D) To the finished system

The addition should be made under the previously outlined conditions which eliminate colloidal shocks. Note also that slow agitation prevents whipping air into the system.

Special dispersed systems are available for specific applications in the aqueous field.

#### Coloramic To Issue Licenses for Producing Multicolored Enamels

Coloramic Coatings, Inc., 6231 South Manhattan Place, Los Angeles 47, Calif., has announced that it is prepared to issue licenses to lacquer manufacturers for producing multicolored enamels under U.S. Patent No. 2,591,904.

The licensing company states that the application of the new type enamel is simple enough so that the attractive multicolored textured pattern can be produced in one coat with ordinary spray equipment.

Companies seeking additional information regarding the licensing agreement may write directly to Coloramic Coatings, Inc., 6231 South Manhattan Place, Los Angeles 47, California.

#### Martin-Semour Expands Its Palette Of Packaged Neu-Tone Flat Paints

Expansion of its palette of packaged Neu-Tone alkyd flat, enamel type paints by a system of adding Nu-Hue colorants to ready-packaged products was announced recently by the Martin-Semour paint Company, Chicago.

The development increases from 16 to 144 the number of colors in the line, according to William M. Stuart, president.

He said that the paint dealer only needs to add to his inventory an assortment of 16 tube colors, the mixing formulas, and the color samples.

"The possibility of error through faulty measuring is eliminated in mixing Neu-Tone colors," Mr. Stuart explained, stating that only one tube of color is needed to mix with the ready-packaged paint.

Selection of the 144 colors was determined by a study of home owners color preferences.

Merchandising aids for the Neu-Tone tube color program include a giant color harmony panel, a chip rack, giant color cards, color post cards, and mailing folders.

#### A-D-M Offers Promotion Material In Drive to Increase Paint Sales

A "paint merchandising machine" is how the Archer-Daniels-Midland Co., Minneapolis, describes the display material it is offering to paint dealers as part of the industry-wide Week-End Decorator promotion to stimulate paint sales to retail trade.

The display material for the Week-End Decorator drive, which began August 30, includes a canopy with room for displaying paint and paint accessories.

In addition to the corner stand, the program includes posters and banners to turn any paint store into a head-quarter for the drive.

Many paint manufacturers and paint associations are participating in the promotion program.

## HOUSE PAINTS

(From page 42)

its high refractive index together with controlled particle size and chalk resistance, high hiding rutile titanium dioxide is an important factor in many current house paint pigmentations. These new titanium dioxide type pigments are making compositional changes feasible which previously were considered impractical or impossible.

### Primer Or First Coat Compositions

The current trend in primer pigmentations is to make use of chalk resistant rutile titanium dioxide, in so far as possible, in order to realize less checking, cracking and flaking type failures. Actually, Federal Specification TT-P-25 was revised to TT-P-25A as of January, 1951 and an important part of this revision was to replace free chalking anatase with chalk resistant rutile titanium dioxide. There is no question of the durability advantage inherent in chalk resistant rutile type pigmentations as compared with free chalking anatase.

Opinions differ with regard to the use of zinc oxide or leaded zinc oxide in the primer. The use of zinc oxide in a primer in the form of leaded zinc oxide or lead free zinc oxide can give added resistance to mildew and erosion. These considerations are often important and especially so for repaint work. Zincless primers, on the other hand, give superior resistance to moisture failure as compared with primers containing zinc oxide or leaded zinc oxide when tested over new wood. There is considerable evidence to the effect that resistance to moisture failure is controlled to a much larger degree by the first paint system applied to the wood than by the repaint system used. Consequently, in instances where moisture problems are expected, the use of zinc oxide or leaded zinc oxide in the first coat applied to the wood should be discouraged.

The use of chalk resistant rutile type primers is an effective means of laying a foundation for maintenance of good protection and appearance by one coat repaint applications at reasonable time intervals.

### High Hiding Paints

The consideration which lends support to high hiding paints is the desire of the manufacturer to provide the painter and consumer with paints which will give gleaming white surfaces in two coats regardless of how discolored or dingy the surface may be over which

those high hiding paints are applied. This desire on the part of the manufacturer is commendable and excellent results can be realized provided these paints are applied at or close to the spreading rates specified by the manufacturer. Good initial appearance could be obtained by the painter and poor durability result, however, if these high hiding paints are applied at exceptionally high spreading rates.

There is interesting evidence to the effect that high hiding chalk resistant rutile type paints are superior to similar low hiding paints in resistance to dirt collection. This observation can be important because marked improvements in durability and resistance to washing are possible with chalk resistant rutile pigments provided satisfactory performance can be realized in resistance to dirt collection and/or mildew.

### Fewer Coats

Application costs are sufficiently high to encourage the consumer to apply in most cases not more than two coats and sometimes only one coat. Consequently it behooves the manufacturer to provide the best possible paints to meet these conditions. Fortunately a considerable amount of progress has been realized in this regard.

One coat house paints for repaint work are on the market which have merit. Certain pertinent considerations involved in making such a paint are:

1. A high titanium dioxide pigment content for ample hiding.
2. The use of chalk resistant rutile pigment in so far as can be permitted to control chalking and to give added durability. In some cases semi-chalking anatase pigment may be used for this purpose.
3. A low oil content bodied linseed type vehicle in order to permit low spreading rates without encountering wrinkling.
4. Controlled penetration in order to obtain a uniform gloss.

Starting with a good foundation, excellent appearance and durability characteristics can be realized from one coat repaint work.

### Lead Free Paints

There is a general trend toward lower lead and increased titanium dioxide in house paint pigmentations. Obviously lead free house paints are the net result of such a trend. This formulation trend may be encouraged considerably by cost considerations. It is well established that good paints can be made without lead and it is expected that further improvements will be made in lead free formulas as additional exposure information becomes available.

Lead free paints can be used to realize definite advantages in resistance to discoloration from fumes as compared with paints which carry white lead pigments and/or lead driers. In this connection with lead pigment and lead drier present, severe discoloration is realized from a five minute exposure to water saturated with hydrogen sulfide. This discoloration is markedly decreased but not completely eliminated when the lead is removed from the pigmentation. A further reduction of such discoloration is realized when lead is removed from the pigmentation and from the drier. Other conditions being equal, however, paints containing lead free pigmentations do not dry as well as paints containing lead in the pigmentations. Eliminating lead by replacing leaded zinc oxide with lead free zinc oxide can give paints with poor drying characteristics unless suitable alterations are made in the drier content. A lead free drier is required only where fume proof characteristics are desired. Lead driers are preferred for best drying characteristics although as yet no durability differences have been demonstrated between lead free and lead containing driers. Accordingly, careful consideration should be given to the driers used.

Current lead free house paints for the most part are pigmented with titanium dioxide, zinc oxide and magnesium silicate. Titanium dioxide is used to obtain the hiding power desired. Acicular zinc oxide, or a large particle size nodular type zinc oxide, is used to control chalking and mildew, while magnesium silicate or other extenders are used for the balance of the pigmentation. Under these pigmentation conditions, mildew would be encouraged with a high oil content vehicle. Accordingly, a low oil content type vehicle is preferred. In some instances, a mildew inhibitor can be helpful in realizing improved performance.

### Calcium Carbonate As An Extender

The use of calcium carbonate to replace magnesium silicate and/or calcium sulphate in house paint compositions offers interesting possibilities. The types of calcium carbonate extender preferred for house paint pigmentations are the dry ground natural products which are relatively large in particle size and low in total surface, oil absorption, reactivity and conductivity.

In white paints, selected calcium carbonate extenders are being evaluated. Definite advantages in resistance to mildew and erosion can be demonstrated for calcium carbonate as compared with magnesium silicate or calcium sulphate. Further, the mildew inhibition characteristic of calcium

carbonate may permit marked reductions in the zinc oxide or leaded zinc oxide content of regular house paint pigmentations. The use of chalk resistant rutile along with the free chalking anatase titanium dioxide to control chalking and to give added resistance to cracking failure is considered very desirable for low zinc oxide or leaded zinc oxide paints which carry calcium carbonate as the extender. Ultimate durability results are not available on such paints at the present time but exposure tests are in progress and so far look very promising.

In tinted paints, selected calcium carbonate extender can be used to obtain superior tint retention and mildew resistance as compared with magnesium silicate or calcium sulfate. The tint retention for lead free paints, which carry calcium carbonate extender, is fully equal to if not superior to similar paints containing lead pigments. Again, as in the white paints, there is evidence that the zinc oxide or leaded zinc oxide content of the pigmentation can be markedly reduced in the presence of a substantial amount of calcium carbonate extender.

An all purpose tint base is a logical development in the use of calcium carbonate extender. In this regard a combination for chalk resistant rutile titanium dioxide, acicular or nodular zinc oxide and calcium carbonate deserves careful consideration as a pigmentation for a paint composition which can be used as a white or tinted if so desired.

#### Future Developments

The chief difficulties encountered with present exterior coatings are blistering under adverse moisture conditions and staining from corroded iron or copper. In recent years considerable progress has been made in formulating paints which offer promise of superior resistance to blistering and staining also good crack resistance when used over yellow pine. Under these conditions it is probable that such paints will be made available when good performance can be assured and undue risks eliminated. This means of course that exposure experience must be developed. Further repaint characteristics are important and exposure information of this kind requires considerable time. The more promising blister and stain resistant paints in test are made with non-reactive type pigmentations in special vehicles. This is a radical change from the present and earlier conception of compositions for house paints. Accordingly, caution is dictated and extensive testing is very essential in order to prevent possible costly mistakes. Already, a considerable amount of this required testing is in progress.

Polvinyl acetate emulsion offers promise as an all purpose binder which is difficult to match with the binders commonly used at the present time. It appears that polyvinyl acetate emulsion coatings possibly can be made which will show good performance on interior, exterior, wood or stucco surfaces including such exterior surfaces as glazed asbestos shingles and yellow pine. Admittedly, the tests available to date are very limited. However, if the favorable exposure results for these water reduced paints continue, such coatings will offer severe competition for many of the coatings widely used at the present time.

Mildew is more and more being recognized as a hazard which must be dealt with in house paint compositions. The more promising mildew inhibitors for white house paints at the present time are various mercury compounds and trichloromethyl-thiotetrahydrophthalimide. It is quite possible, however, that definite strides will be made in the days ahead with regard to more economical and effective mildew control.

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## INDUSTRIAL FINISHES

(From page 47)

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as often kept by each company as part of its closed-file techniques. Though the specific procedures to make a pigment are not known, the net result of a large portion of the improvements of late has been toward increased *ease and maintenance of dispersion*. For example, phthalocyanine colors of improved resistance to flocculation are continually being announced. Areas of chemical property deficiency are also being overcome. Ultramarine blues of increased resistance in acid media and iron blues of better resistance to alkaline conditions are reaching the market.

As a result of the requirements of water-dispersed vehicles, pigments of extremely low water-soluble-salt content have been developed. Their application in industrial enamels to improve weather and humidity resistance is under test.

#### Specialties

Numerous specialty applications for pigments are constantly being developed. For example, a form of silica gel—which has proven to be the standard flattening pigment in quality clear lacquers—is used as a gassing preventative in aluminum paints (by absorbing any moisture present). Particularly for use in furniture and cabi-

net lacquers, this material is unequalled as a gloss reducing agent, combining maximum flattening efficiency with high film clarity.

Iron oxide pigments of greater purity and cleanliness are now available. They enable red colors to be matched using far less of the more costly organic toners than had heretofore been required.

New "soluble" complexes of iron oxide have been marketed in recent years. These pigments act as if they were dyestuffs at low concentrations (but without such disadvantages as bleeding, fading, etc.), and over polished metal produce very attractive transparent gold enamels. When combined with aluminum paste and/or other transparent pigments, novel color effects are produced which have made their mark in the automotive field.

#### Color Preferences

The finishing of automobiles has proven a revelation in color preference. This vast and influential market for lacquers and synthetic enamels had been dominated by black, but the post-war trend toward lighter and more dynamic colors has advanced to the point where more cars were finished in shades of green than any other color.

The furniture market, long dominated by the more somber tones of mahogany, is also experiencing a color revolution. Modern styling trends have been accompanied by much more extensive use of a lighter appearance. This is achieved not only by bleaching the wood and then finishing in the normal manner, but also by first applying light colored toning lacquers and then using filler of a contrasting shade.

Appliances are also feeling the impact of changing color preferences. Pastels and deep-tones of many hues are being marketed for refrigerators, freezers, washing machines, air conditioners, mixers, vacuum cleaners, and the multitude of other products in this category. To achieve the high performance standards reached with titanium dioxide and carbon black, the resistance properties of somewhat more expensive pigments must be used, viz., phthalocyanine blue and green, cadmium red and yellow, etc.

Though there is a dearth of new types of pigments, the effect of color can not be overestimated. Every facet of daily living is increasingly influenced by color—color produced by pigments specifically developed for industrial finishes. They are part of decorative and protective coatings custom-formulated as an integral part of the object for which they serve as the finish.

# MANUFACTURERS and SUPPLIERS

The following is an alphabetical listing of manufacturers and suppliers of pigments and extenders for use in the production of paints and allied coatings. Every attempt was made to insure completeness of this summary, and if omissions have occurred they were through no failure of effort on our part. Claims made of the products mentioned are strictly those of the manufacturers and do not represent editorial endorsement.

AMERICAN AGRICULTURAL CHEMICAL CO., Detroit 31, Mich.—Bone black  
AMERICAN COLLOID CO., Chicago 10, Ill.—Bone Black  
AMERICAN FIRSTLINE CORP., New York, N. Y.—Zinc Oxide, Lithopone, Titanium Dioxide, White Lead, Iron Oxide, Litharge Red Lead, Aluminum Minium (compound of aluminum oxide and iron oxide)  
AMERICAN ZINC SALES CO., Columbus 16, Ohio—Zinc Oxides, Leaded Zinc Oxides  
ANSBACHER-SIEGLE CORP., Staten Island, N. Y.—Organic Pigments  
ALUMINUM CO. OF AMERICA, Pittsburgh 19, Pa.—Aluminum Standard and Tinting Pastes  
ALUMINUM FLAKE CO., Akron 14, Ohio—Aluminum Silicate Extenders  
BERKSHIRE CHEMICALS INC., New York 17, N. Y.—Lead Cyanamide (Anti-Rust Pigment)  
BINNEY & SMITH CO., New York 17, N. Y.—Carbon Blacks, Bone Black, Black Dispersions  
BLUE RIDGE TALC CO., INC., Henry, Va.—Red, Brown, Metallic Brown Oxides and Venetian Red  
GODFREY L. CABOT, INC., Boston 10, Mass.—Carbon Blacks, Wallastonite (Calcium metasilicate)  
CALCO CHEMICAL DIV. Pigment Dept. (American Cyanamid), Bound Brook, N. J.—Titanium Dioxide, Inorganic and Organic Pigments, Lakes & Toners, Anti-corrosive Pigments  
CARBOLA CHEMICAL CO., INC., Natural Bridge, N. Y.—Modified Magnesium Silicates  
CARBON DISPERSIONS, INC., Newark 5, N. J.—Carbon Black Dispersions  
CHEMICAL & PIGMENT CO., Baltimore, Md.—Titanated Lithopones  
CLAREMONT PIGMENT DISPERSION CORP., Brooklyn, N. Y.—Line of Dispersed Pigments  
COLUMBIAN CARBON CO., New York, N. Y.—Carbon Blacks, Pure and Synthetic Iron Oxides. Distributors: Binney & Smith  
CONCORD MICA, Concord, N. H.—Waterground Mica  
DAVISON CHEMICAL CORP., Baltimore 3, Md.—Synthetic Silica (used as flattening agent)  
DE LORE DIV., National Lead Co., St. Louis 11, Mo.—Extender Pigment: Barium Sulphate, Calcium Carbonate, Diatomaceous Material  
DIAMOND ALKALI CO., Cleveland 14, Ohio—Precipitated Calcium Carbonates, Magnesium Silicate  
JOSEPH B. DIXON CRUCIBLE CO., Jersey City, N. J.—Graphite  
STANLEY DOGGETT, INC., New York, N. Y.—Dry Colors  
E. I. du PONT de NEMOURS & CO., Pigment Dept., Wilmington 98, Del.—Inorganic and Organic Colors; Special Colors: Green-Gold, BON Red and Maroons, Copper Maroon, Argent Gray (transparent); Standardized Color Pastes; Latex Dispersible Dry Colors; Water Dispersible Dry Colors; Anti-corrosive Pigments: Zinc Yellow, Basic Zinc Chromate; Whites: Titanium Dioxide Pigments, Lithopone  
EAGLE-PICHER, Cincinnati 1, Ohio—White Lead, Zinc Oxide, Leaded Zinc Oxide, Lithopone  
J. S. & W. R. EAKINS, Brooklyn 11, N. Y.—Dry and Pulp Colors  
EDGAR BROTHERS CO., Metuchen, N. J.—Aluminum Silicate Extender Pigments  
ENGLISH MICA CO., Stamford Conn.—Waterground Mica, 2 Grades of Micro Mica  
EUSTON LEAD CO., Scranton, Pa.—White Lead  
FRANKLIN MINERAL PRODUCTS CO., Franklin, N. C.—Dry Ground Mica  
FEDERAL COLOR LABORATORIES, INC., Cincinnati 12, Ohio—Chlorinated Para, Lithol Toners, Rubines, BON Maroons, Paras, Permanent Red 2B, Toluidenes, Tungstated Types (Red, Blue, Green, Violet), Dinitraniline Orange, Hansa Yellows, Phthalocyanines (Blue and Green)  
FEDERATED METALS DIV., American Smelting and Refining Co., New York 5, N. Y.—Zinc Just  
FERRON ENAMEL CORP., Cleveland, Ohio—Cadmium Yellow and Orange Pigments

FILO COLOR & CHEMICAL CORP., New York, N. Y.—Organic and Mineral Pigments  
FINE COLORS CO., Patterson, N. J.—Toluidene Red, Pigment Green B, Phthalocyanine Blue & Green, Hansa Yellow, Naphthol Red, Specialty Colors  
FOOD MACHINERY AND CHEMICAL CORP., Westvaco Chemical Div., New York 17, N. Y.—Basic Aluminum Sulphate, Basic Aluminum Phosphate, Alumina Hydrate Paste, Magnesia, Barium Carbonate, Barium Sulphide, Barytes, Blanc Fixe, Gypsum

GARCO PRODUCTS, INC., Butler, Pa.—Finely-Divided Silica  
GENERAL DYESTUFF CORP., New York 14, N. Y.—Soluble Dyestuffs (for woodstains and lacquers); Pigment Dyestuff: AZO, Metal Complex Pigments, Vat Pigments of Indanthrene, Indigo and Thioindigo; Hellogen Series (tailor-made phthalocyanines)  
GENERAL MINING ASSOCIATES, Baltimore, Md.—Dry Ground Mica  
GEORGIA KAOLIN CO., Elizabeth, N. J.—Inert Hydrated Aluminum Silicate Pigments for Latex-Emulsion Paints  
GEORGIA MARBLE CO., Calcium Products Div., Tate, Ga.—Wet and Dry Ground Marble  
THE GLIDDEN CO., Baltimore, Md.—Titanium Dioxide, Cadmium Red and Yellow Lithopones  
GREAT LAKES CARBON CORP., New York 17, N. Y.—Extender and Flattening Pigments (diatomaceous silica)

CHARLES HARDY, INC., New York 17, N. Y.—Stainless Steel Dry Flake and Stainless Steel Paste  
HAMMOND LEAD PRODUCTS, INC., Hammond, Ind.—Litharge and Red Lead  
HARMON COLOR, B. F. Goodrich Chemical Co., Hawthorne, N. J.—Toluidene and Para Reds, "Gold Pastes", Pyrazolone Red, Thio Indigo Colors, BON Reds, Phthalocyanines, Dispersed Colors, Water-Dispersible Colors for Latex Paints  
HARSHAW CHEMICAL CO., Cleveland 6, Ohio—Cadmium Lithopone (yellows, oranges, reds, maroons), Cobalt Blues, Cerulean Blue, Antimony Oxide (White)

HILTON-DAVIS CHEMICAL CO., Cincinnati 13, Ohio—Flushed Colors, Inorganic and Organic Colors, Custom Dispersion Service  
HOLLAND COLOR & CHEMICAL CO., Holland, Mich.—Line of Organic Pigments, Lakes and Toners, Flushed Colors, Flushed Chrome Hydrate  
J. M. HUBER, INC., New York 1, N. Y.—Carbon Blacks, Kaolin Clays, Microlitic Zeolite (white reinforcing pigment)  
IMPERIAL PAPER & COLOR CORP., Pigment Color Div., Glens Falls, N. Y.—Organic and Inorganic Pigments, Lakes & Toners, Anti-corrosive Pigments  
INVIS, SPEIDEN & CO., New York 6, N. Y.—Silica, Precipitated Calcium Carbonate, Aluminum Hydrate, Aluminum Silicate, Magnesium Carbonate  
INTERNATIONAL TALC CO., INC., New York 6, N. Y.—Natural, Fibrous (acicular) Magnesium Silicate ("Asbestines")  
JOHNS-MANVILLE PRODUCTS CORP., Celite Div., New York 16, N. Y.—Diatomaceous Silica Type Fillers and Extenders

KENTUCKY COLOR AND CHEMICAL CO., Louisville 12, Ky.—Inorganic Pigments; Lead Chromates, Molybdated-Lead Chromates, "Ming" Oranges, Zinc Chromates, Chrome Greens, Iron Blues, Cadmium Yellow and Red Toners; Organic Pigments: Toluidene Reds, Para Reds, BON Reds and Maroons, Red and Maroon Lakes, Naphthol Reds; Anti-corrosive Pigments: Strontium Chromate, Barium Chromate  
H. KOHNSTAMM & CO., INC., Brooklyn 31, N. Y.—Organic Toners and Lakes, Iron Blue  
W. H. LOOMIS TALC CORP., Gouverneur, N. Y.—Talc Line  
JOHN R. MACGREGOR LEAD CO., Chicago 23, Ill.—White Lead  
MAGNA MANUFACTURING CO., INC., Haskell, N. J.—Aluminum and Bronze Powders and Pastes  
THE L. MARTIN CO., New York 17, N. Y.—Lampblack  
METALEAD PRODUCTS CORP., San Francisco 4, Calif.—Flaked Metallic Lead  
METALS DISINTEGRATING CO., INC., Elizabeth 13, N. J.—Aluminum Pastes and Powders  
METASAP CHEMICAL CO., Harrison, N. J.—Flattening Agents

MINERAL PIGMENTS CORP., Muirkirk, Md.—Mineral and Synthetic Iron Colors, Chrome Colors, Chromium Oxides, Chromium Phosphate, Iron Blues, Lamp and Carbon Blacks (pulp and dry); Latex Colors (pulp & dry); Benzidine, phthalocyanine blues and greens  
MINNESOTA MINING & MANUFACTURING CO., St. Paul 6, Minn.—Red Iron Oxides  
MONSANTO CHEMICAL CO., Merrimac Div., New York, N. Y.—Lampblack  
NATIONAL LEAD CO., New York 6, N. Y.—White Lead (dry & paste form), Antimony Oxide, Anti-corrosive Red Lead Pigments. See also De Lore Div. and Titanium Pigment Corp.  
NEW JERSEY ZINC SALE CO., New York 7, N. Y.—Zinc Oxide, Zinc Sulphide, Zinc Dust, Luminescent Pigments  
C. J. OSBORN, New York, N. Y.—Red Brown, Yellow Iron Oxides  
PRINCE MANUFACTURING CO., Bowmans-town, Pa.—Red, Brown, Yellow Iron Oxides, Raw and Burnt Siennas, Raw and Burnt Umbers, Van Dyke Brown, Mineral Black  
R-B-H DISPERSIONS, Div. of Interchemical Corp., Bound Brook, N. J.—Line of Dispersed Pigments, "Midas Gold" (organo-iron complex produced as a concentrated colloidal suspension in solvent)  
REICHARD-COULSTON, INC., N. Y.—Synthetic and Natural Iron Oxides (various shades)  
REICHHOLD CHEMICALS, INC.—New York 20, N. Y.—Inorganic Colors, Phthalocyanine Blue  
REYNOLDS METALS CO., Louisville 1, Ky.—Leafing and Non-Leafing Pigments, Atomized and Granular Powder, Aluminum Paste  
ST. JOSEPH LEAD CO., New York 17, N. Y.—Zinc Oxide  
THE SHERWIN-WILLIAMS CO., Pigment Chemical and Color Div., Chicago 28, Ill.—Dry Colors (inorganic and organic), Specialty Colors and Lakes, Standard Pulp Colors, Pulp Colors for Emulsion Paint, Tungstated and Molybdated Colors  
SIERRA TALC & CLAY CO., Los Angeles 22, Calif.—Talc Line  
SILBERLINE MANUFACTURING CO., Stamford, Conn.—Aluminum Pastes  
J. LEE SMITH, New York 38, N. Y.—Umbers, Siennas, Ochres, Yellow Oxides, Synthetic Oxides, Red Oxides, Van Dyke Browns  
SMITH CHEMICAL & COLOR CO., Brooklyn 1, N. Y.—Dry Colors and Inerts  
STANDARD ULTRAMARINE CO., Huntington, W. Va.—Inorganic and Organic Blues; Line of Organic Reds, Maroons, Greens, Yellows  
TAMMS INDUSTRIES, INC., Chicago, Ill.—Red Oxides, Yellow Oxides, Mineral Blacks, Line of Inerts  
THOMPSON-WEINMAN & CO., New York, N. Y.—Wet and Dry Ground Grades of Calcium Carbonates, Kaolin Clays, Mica, Barytes  
TITANIUM PIGMENT CORP., New York 6, N. Y.—Line of Titanium Dioxide Pigments  
U. S. BRONZE POWDER WORKS, New York 18, N. Y.—Aluminum Powders & Pastes, Gold Bronze Powders  
PAUL ULICH & CO., INC., New York 6, N. Y.—Phthalocyanine Blue, Blue Lakes and Toners  
UNITED CARBON CO., Charleston 27, W. Va.—Carbon Blacks  
UNITED WALL PAPER, INC., Chicago 54, Ill.—Water Dispersed and Pulp Colors  
UTILITY COLOR CO., Newark, N. J.—Chrome Greens, Iron Blues and Milori Blues  
R. T. VANDERBILT CO., New York, N. Y.—Magnesium Silicates (4 grades)  
WESTERN DRY COLOR CORP., Chicago 9, Ill.—Dry Colors, Lakes and Toners  
G. A. WHARRY & CO., INC., New York 4, N. Y.—Natural Calcium Carbonate  
WHITTAKER, CLARK & DANIELS, INC., New York 13, N. Y.—Magnesium Silicates (low micron), Calcium Carbonates (precipitated and ground limestone), Phthalocyanine Blue (pure toner, lake color, flushed in vehicle), Imported Talc, Talc for Emulsion Paints  
C. K. WILLIAMS & CO., Easton, Pa.—Iron Oxides (red, yellow, brown, black); Chromium Oxides; Hydrated Chromium Oxides; Venetian Reds, Cuprous Oxide; Extenders: Barytes, Precipitated Calcium Carbonate, Anhydrous Calcium Sulphate; Umbers and Siennas (raw and burnt); Natural Ochres; Metallic Browns; Natural Red Iron Oxides, Primer Pigments  
WITCO CHEMICAL CO., New York 17, N. Y.—Carbon Blacks, Calcium Carbonate Extenders, Stearates  
WYANDOTTE CHEMICALS CORP., Wyandotte, Mich.—Precipitated Calcium Carbonate



JOSEPH F. BATTLEY  
President

**Officers  
National  
Paint, Varnish  
and Lacquer  
Association**



BERNHARD MAUTZ  
Vice-President

**October 26th - 28th 1953  
Chalfonte - Haddon Hall, Atlantic City, N. J.**



H. B. DAVIS  
Treasurer



LATHROP G. BACKSTROM  
Chairman, Exec. Comm.



## 31st Annual Meeting



G. H. WESCOTT  
President

### Officers Federation of Paint and Varnish Production Clubs



C. J. OVERMYER  
President-elect

**October 29th - 31th 1953**  
**Chalfonte - Haddon Hall, Atlantic City, N. J.**



N. P. BECKWITH  
Treasurer



C. HOMER FLYNN  
Executive Secretary

# 65th Annual Convention National Paint, Varnish and Lacquer Association October, 26-27-28

## MONDAY, OCTOBER 26

2:00 P.M.

### GENERAL SESSION

**Presiding:** Joseph F. Battley, President  
**Call to Order, Our National Anthem**  
—D. J. Healy

**Invocation**—Horace S. Felton

**Welcome to Delegates**—

Federation of Paint and Varnish Production Clubs—G. H. Wescott, President

National Paint Salesmen's Association—Charles A. Gerbig, President

Painting and Decorating Contractors of America—R. H. Bohl, President

Retail Paint and Wallpaper Distributors of America—Kal Waller, President

American Tung Oil Association—Marshall Ballard, Jr., President

Canadian Paint, Varnish and Lacquer Association—C. C. Pettet, President

**Presiding**—Bernhard Mautz, Vice President

**In Memoriam**—Horace S. Felton, Chairman

**Preliminary Report of By-Laws Committee**—J. V. Thompson, Chairman

**President's Report**—Joseph F. Battley  
**Report of the Treasurer**—H. Braith Davis

**Preliminary Report of Nominating Committee**—Norman W. Kelley, Chairman

**"The Constitution Is Your Business"**  
—Dr. Clarence E. Manion

### ADVERTISING AND SALES PROMOTION MANAGERS FORUM

9:30 A.M., OCT. 26

**Presiding**—Granville M. Breinig, Chairman

Discussions on subjects of particular interest to Advertising and Sales Promotion Managers.

### PUTTY MANUFACTURERS' FORUM

**Presiding**—John N. Dicks, Chairman  
**"New Equipment and Techniques in Manufacturing and Packaging Putty"**  
—Louis A. Prosch.

**"Promoting Proper Use of Putty By Contractors and Architects"**—Ronald Brown.

### ANNUAL MEETING WHOLESALE-DISTRIBUTORS DIVISION

10:00 A.M., OCT. 26

**Presiding**—L. B. Hollein, Vice Chairman  
**"The Wholesaler—or a Paint Jobber!"**  
—William M. Stuart.

**"Recent Technical Developments in the Paint Industry"**—J. C. Moore.

**"Storage of Paint"**—F. Scofield.

**"Efficient Warehousing Operations"**  
—J. Wm. Johnston.

## TUESDAY, OCTOBER 27

9:30 A.M.

### GENERAL SESSION

#### INDUSTRIAL PRODUCT FINISHES DIVISION 20TH ANNIVERSARY PROGRAM

**Presiding**—Joseph A. Hager, Chairman  
Industrial Product Finishes Steering Committee.

**"The Industrial Product Finishes Division Comes of Age"**

**Introduction of Members First Steering Committee, 1933**—President Joseph F. Battley.

**"The Conception and Birth of the Industrial Product Finishes Division"**—W. I. Longworth.

**"The Industrial Product Finishes Division from 1933 to 1953"**—J. A. Hager.

**"The Future For the Industrial Product Finishes Division"**—L. S. Guthman.

**"An Official Look at America Under a New Administration"**—Honorable Walter Williams, Under Secretary of Commerce.

2:30 P.M.

### TRADE SALES MANAGEMENT FORUM

**Presiding**—A. A. Shuger, Chairman  
Development of the Home Painting Market  
**TV Test Campaign Films**—Featuring Norman Brokenshire.

**"Results In Test Cities to Date"**—Lucien C. Rondot, Associate, Fact Finders Associates, Inc.

**"Are Your Dealers Using the Selling Aids You Provide?"**—Jerome J. Crowley, Jr.

**"National Survey of Consumer Painting Habits"**—Howard A. Trumbull, President, National Family Opinion, Inc.  
**Salesmen's Compensation Plans**—Discussion.

**Cost Analysis**—Discussion.

### CAULKING COMPOUND MANUFACTURERS' FORUM

9:30 A.M., OCT. 27

**Presiding**—Norman M. Cornell  
Advertising and Educational Programs  
On Use of Caulking Compounds.

Should a Program of Simplified Practices As to Color and Containers Be Developed for Government Adoption?  
Discussion Period.

### ROOF COATING AND ROOF CEMENT MANUFACTURERS' FORUM

2:30 P.M., OCT. 27

**Presiding**—H. R. Allison, Chairman  
**"Revision of Federal Specification SS-R-451"**—E. J. Fisher.

**"Roof Coating Freight Classification"**  
—W. Gittens.

**"Revision of Roof Coating Manual"**—Discussion.

**Roof Coating and "Water the Hidden Menace to Homes" Program**—Discussion.

## WEDNESDAY, OCTOBER 28

9:30 A.M.

### GENERAL SESSION

**Presiding**—Ernest T. Trigg, Past President and Honorary Life Chairman, Executive Committee.

**Final Report of By-Laws Committee**—J. V. Thompson, Chairman

**"An Appraisal of Our Free Enterprise System"**—James A. McConnell, Executive Vice President, Cooperative G. L. F. Exchange.

**Final Report of Nominating Committee**—Norman W. Kelley, Chairman

**Election and Installation**—Officers and Members of the Executive Committee.

**Unfinished Business.**

**New Business.**

**Adjournment.**

### PROGRAM OF SOCIAL EVENTS

#### MONDAY, OCTOBER 26

6:00 p.m.—**Reception to Members and Guests**—Carolina Room, Chalfonte Hotel

#### TUESDAY, OCTOBER 27

12:30 p.m.—**Men's Luncheon.**

#### WEDNESDAY, OCTOBER 28

12:30 p.m.—**Joint Luncheon for Ladies and Men.**

# 31st Annual Convention

## Federation of

## Paint and Varnish

## Production Clubs

### WEDNESDAY, OCTOBER 28th

9:00 A.M. Registration

1:30 P.M. Council Meeting

### THURSDAY, OCTOBER 29th

#### Morning Session

Greetings—Gustave H. Wescott, President  
Welcome—H. G. Sholl, Chairman of Meetings Committee

F. M. Damitz, Chairman of Host Committee

H. A. McConaghie, Chairman of Paint Industries Show Committee

**"Solveny Characteristics of Low Odor Type Thinners"**—Golden Gate Club. Francis K. Wilson, Chairman.

**"Dry Hiding Power of Paints: III"**—New York Club. Subcommittee 40: E. J. Dunn, Jr., Chairman, C. H. Baier, E. C. Botti, L. A. Melsheimer, E. R. Stacy, S. Werthan, A. G. Lynch.

**Report of President**—Gustave H. Wescott

**Address**—Joseph F. Battley, President of the National Paint, Varnish and Lacquer Association.

**"Curing Agents for Epoxy Resins"**—Northwestern Club. John Rouse Chairman, H. Wittcoff, D. Glaser, E. Fleischer, A. Olsen.

**Thursday Afternoon Session**—W. J. Greco Presiding

**"An Investigation of Spontaneous Combustion of Paint Vehicles"**—Louisville Club. C. M. Jackson, Chairman.

**Keynote Address**—"The Protective Coatings Industry: A Practical Science"—Dr. Roy H. Kienle, Director of Applied Research, Calco Chemical Div., American Cyanamid Company.

**Education Session**—M. A. Glaser, Chairman of Federation Educational Committee.

**High School Student Program**—Dr. J. W. Tomecko.

**"Emulsion Paints"**—New York Club, F. B. Stieg, Chairman.

**"A Comparison of Alkyd Flat, Latex and other Interior Wall Paints"**—Baltimore Club, John Emmerling, Chairman.

**Round Table Discussion**—"Water Dispersed Paint Systems"—Arranged by W. J. Greco of the Program Committee. Panel Members: H. F. Payne, Moderator—Binders; W. H. Hoback, Pigment Dispersions; E. C. Sholl, Manufacture; N. J. Timmons, New Acrylic Resin Dispersions; H. E. Hillman, Consumers Reactions.

**Annual Bridge Tournament**

**Past Presidents Dinner**

### FRIDAY, OCTOBER 30th

**Morning Session**—F. E. Petke, Presiding  
**"Glossmeter Design and Gloss Standards"**—Detroit Club. Standards and Methods of Test Committee: Arthur D. Newell, Chairman, W. Paterson, R. Monaghan, J. Straith, R. Bradley, G. Poy.  
**"Evaluation of Color and Reflectance Measuring Instruments"**—Chicago Club, Fred Heiss, Chairman.

**Research Committee Session**—Report of Federation Research Committee—P. O. Blackmore, Chairman.

**Report of Evaluation Committee of Federation Research Projects**—Dr. W. O. Lundberg, Coordinator.

**Round Table Discussion**—"Gadgets and Gimmicks". Arranged by F. E. Petke of the Program Committee and W. C. Kentner.

**Afternoon Session**—H. Kelfer, Presiding.  
**"The Protectometer and the Evaluation of Anti-Corrosive Primers"**—M. A. Danforth, K. H. E. Larson and Dr. Wouter Bosch of North Dakota Agricultural College.

**"A Study of Vehicles and Pigments in High Heat Resistant Coatings"**—Houston Club, H. C. Owens, Chairman, David Cook, Walter Johnston, Quentin Nelson, Joe Rench, Clyde Schlesinger.

**THE JOSEPH J. MATTIELLO LECTURE: "The Effect of Pigments Upon the Mechanical Properties of Protective Coating Films"**—Dr. Adolf C. Elm of the New Jersey Zinc Co.

**Round Table Discussion**—"Production Planning and Scheduling"—Arranged by Dr. J. W. Tomecko, of the Program Committee. Panel Members: R. J. Gnaedinger, Moderator; A. H. Benson, J. E. Creager, Henry Einbecker, Edwin F. Jago, H. E. Miles.

**Annual Business Meeting**

**Annual Banquet**

**Dance**

### SATURDAY, OCTOBER 31st

W. W. Cranmer, Presiding.

**Round Table Discussion**—"Putty and Caulking Compounds"—Arranged by Harry Kelfer of the Program Committee. Dr. R. L. McCleary, Research and Development; H. W. Hibbert, Mixing and Filling Equipment; G. E. Hann, Putty and Caulking Failures—Causes and Prevention; W. M. Lawall, Putty and Caulking Specifications.

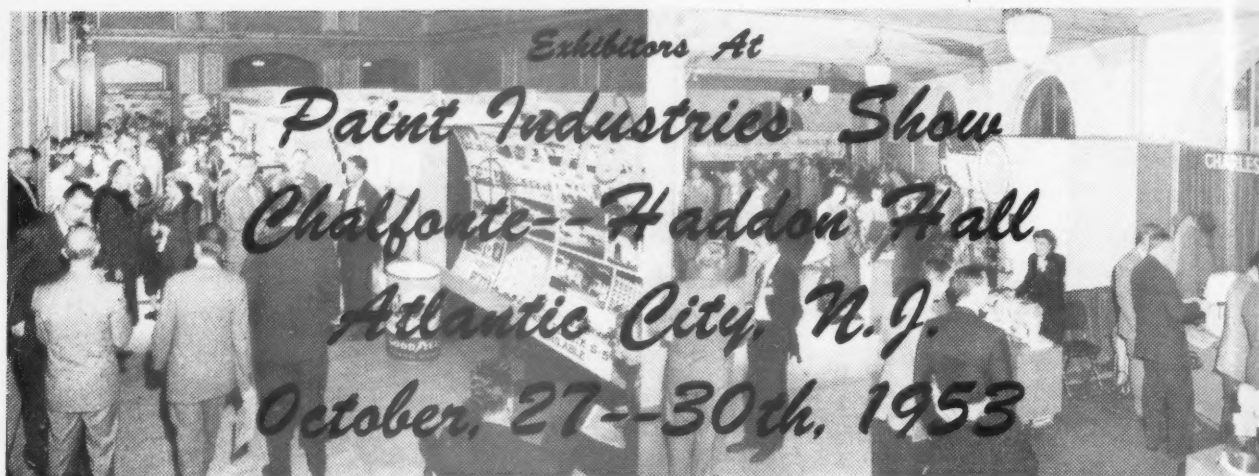
**"Conquering Fire"**—C. D. I. C. Club, Dr. Carl J. Opp, Chairman, F. E. Petke, G. C. Schutte, R. R. Schomaker.

**"Formulation of Fire Retardant Paints"**—Baltimore Club, P. Botzenmayer, Chairman.

**Round Table Discussion**—"Fire Retardant Paints"—Arranged by Dr. Mark W. Westgate of the National Paint, Varnish and Lacquer Association. Panel Members: Dr. M. W. Westgate, Moderator; A. O. Allen, G. S. Cook, R. W. Craig, W. W. Cranmer, I. R. Messers, B. J. Tyler, A. W. Van Heuckeroth, Dr. M. Van Loo.

**Announcements**

**Meeting Closes**



	Booth No.		Booth No.		Booth No.
<b>PAUL O. ABBE, INC.</b> Little Falls, N. J. <i>Ball and Pebble Mills.</i> O. Garlick B. Sala R. Ringen	39	<b>ATLAS ELECTRIC DEVICES CO.</b> Chicago 10, Ill. <i>Weather-O-Meters.</i> J. Lane J. Norton L. Monaghan — See Advertisement Page 117 —	40	J. Kealy J. Keating G. Brannan K. Wade P. True M. Vogel C. Koolik L. Venuto L. Smith J. Gethasli D. Downs — See Advertisement Page 18 —	
<b>ADVANCE SOLVENTS &amp; CHEMICAL CORP.</b> New York 16, N. Y. <i>Driers (Rare Earth, Naphthenates, Octoates, Linoresinates), Paint Specialty Products, Paint Fungicides.</i> A. Mullaly M. Antonovich C. Gardner G. Gregg J. Young C. Lechner W. Tucker — See Advertisement Front Cover —	29-30	<b>ATLAS POWDER CO.</b> Wilmington, Del. <i>Sorbitol, Emulsifiers for Latex and Alkyd Emulsions.</i> M. Brewster E. Ford Other Technical Representatives.	55-56	<b>BOWSER, INC.</b> Fort Wayne, Ind. <i>Cul-away Xacto Meter.</i> W. Cartwright J. Clokey J. Parente W. Powers	23
<b>C. M. AMBROSE</b> Seattle 8, Washington <i>Filling and Closing Machines and Strainers.</i> C. Ambrose W. Kruse P. Zenlea T. Dunn E. Howell J. Styba	101	<b>BAKELITE CO.</b> New York 16, N. Y. <i>Panels of coatings based on company's resin line including phenolic varnish, polyvinyl acetate latex resin based paints, vinyl dispersion coatings.</i> H. Smith C. Patton R. Quarles K. McCullough R. Norum R. Calabiet C. Droman C. Given J. Fryman W. Graves S. Richardson W. Vollmer C. Shoemaker G. Wells G. Powell J. Wynstra A. Downes — See Advertisement Pages 8, 9 —	31-32-33	<b>BURT MACHINE CO.</b> Baltimore 2, Md. <i>Labeling Machines and Case Packing Machines.</i> H. Miller J. Whitehurst N. Munks S. McFarland A. Hornney	100
<b>AMERICAN CYANAMID CO.</b> New York 20, N. Y. <i>Resin Line.</i> E. Bradshaw W. Patrick J. Johnson C. Byron F. Stickie L. Moore F. Charlesworth E. Trussell E. Murray F. Dubbs T. Wannergren J. Oliver S. Garland T. Brude C. Romieux R. Hoekelman L. Cadwell H. Suddard W. Lambert H. Cyphers R. Verdery J. Morris L. Dutt W. Whitescarver W. Norris W. Hensley — See Advertisement Third Cover —	15-16	<b>BAKER CASTOR OIL CO.</b> New York 5, N. Y. <i>Castor Oil and Castor Oil Derivatives.</i> M. Fritts L. Jubanowsky W. Lindlaw T. Patton J. Hayes I. Ash	80	<b>GODFREY L. CABOT, INC.</b> Boston 10, Mass. <i>Special Blacks and Calcium Meta-silicate Extender.</i> G. Duffy G. Berstein M. Jordan S. Carpenter G. Marsh C. Schroth F. Peabody F. King	112
<b>ANDERSON-PRICHARD OIL CORP.</b> Oklahoma City, Oklahoma <i>Solvents, Thinners, Diluents, Asphalt, Petroleum Pitch.</i> C. Dresser D. Rubek J. Phillips H. Easterday J. Fessler R. Johnson C. Gault V. Centracco	76	<b>BEDE PRODUCTS, INC.</b> Cleveland 9, Ohio <i>Airless Spray Painting Equipment and Paint Heaters.</i> J. Bede J. Sanches F. Ziroe R. Schafer	91-92	<b>CARBIDE &amp; CARBON CHEMICALS CO.,</b> Div. of Union Carbide and Carbon Corp. New York 16, N. Y. <i>Data and displays of plasticizers and plastisols; cold-check panels on special low-temperature plasticizers; end products and technical information on glycol maleates for polyester resins, data on high-boiling phenols from coal hydrogenation for phenolic resins; panels on ethyl hexyl acetate in specialty coatings; complete line of solvents for surface coatings.</i> V. Boden D. Nielson R. Leenard R. Dusz J. Paul J. Ross C. Fink J. Kuhn N. Harvey G. Kuehn J. Hografe J. Marshall H. Hughes R. Metz — See Advertisement Page 15 —	83A-84
<b>ARCHER-DANIELS-MIDLAND CO.</b> Minneapolis, Minn. <i>Drying Oils, Fatty Acids, Paint Vehicles.</i> Representatives from all departments. — See Insert Page 26A, B, C —	3	<b>BENNETT INDUSTRIES, INC.</b> Peotone, Ill. <i>Steel Shipping Containers, Steel Farm Tanks.</i> S. Bennett H. LePan E. Searing	105	<b>CARBOLA CHEMICAL CO., INC.</b> Natural Bridge, N. Y. <i>Magnesium Silicate Pigments.</i> H. Koenig K. Roast E. Spriggs W. Smart H. Higgins	65
		<b>BINNEY &amp; SMITH CO.</b> New York 17, N. Y. <i>Carbon Blacks, Iron Oxides, Carbon Dispersions, Bone Blacks.</i>	9		

- Booth No. 22 CARBON DISPERSIONS, INC.  
Newark 5, N. J.  
*Carbon Black and Lampblack Dispersions.*  
A. Brauch D. Grant D. Fitzgerald  
A. Somers J. Belline A. Hurlbrink
- Booth No. 78 CARGILL, INC. FALK QUALITY PRODUCTS DIV.  
Pittsburgh 30, Pa.  
*Linseed Oil, Soybean Oil, Fish Oil, Specialty Products and Alkyd Resins.*  
S. Arnoff S. Rogaliner M. Kantor  
S. Gutkin H. Whiting W. Mattil  
A. Klobe T. Donnelly F. Tropp  
— See Advertisement Page 4 —
- Booth No. 67 CELANESE CORP. OF AMERICA  
New York 16, N. Y.  
*Chemicals for Paint Industry.*  
J. Stevens J. MacFarland R. Kampschulte  
D. Hecht W. Matthews J. Morton  
R. Werner W. Milheim G. Welch  
M. Hoyt J. Wyatt N. Baker  
— See Advertisement Page 24 —
- Booth No. 87 CHISHOLM RYDER CO.  
Hanover, Pa.  
*Labeling and Casing Equipment.*  
E. Abendschein H. Fehrs P. Sanford  
C. Hesson W. Sanford W. Reimers  
K. Severson
- Booth No. 25 CUNO ENGINEERING CORP.  
Meriden, Conn.  
*Industrial Filters.*  
W. Grupe D. Van Vleet G. Miller  
J. Duff  
— See Advertisement Page 99 —
- Booth No. 2 J. H. DAY CO.  
Cincinnati 22, Ohio  
*Roller Mills, Pony Mixers, Paint Mixers.*  
J. Diltz R. Harris R. Mader  
C. McBride
- Booth No. 68-71 DOW CHEMICAL CO.  
Midland, Mich.  
*Latex, Vinyltoluene.*  
F. Gunn A. Butterworth M. Kelley  
N. Peterson D. Schurr M. Johnson  
W. Henson I. Wilson R. Visger  
R. Drubel M. Morand R. Martin  
F. Guigley E. Stillbert R. Dorman  
R. Kugler J. Buege J. Baumgartner  
— See Advertisement Pages 10, 77 —
- Booth No. 17-18 EASTMAN CHEMICAL PRODUCTS, INC.  
Kingsport, Tenn.  
*Half-Second Butyrate Film Former.*  
F. Ball S. Ryburn R. Moore  
D. Campbell R. Shelly C. Penning  
W. Gearhart J. Magoffin J. Sanders  
— See Advertisement Page 80 —
- Booth No. 42 EDGAR BROTHERS CO.  
Metuchen, N. J.  
*Aluminum Silicate Pigments.*  
A. Blake P. Wheeler O. Hempel  
R. Dillay C. Albert R. Wilkerson  
— See Advertisement Page 11 —
- Booth No. 75 EPWORTH MFG. CO., INC.  
Detroit 10, Mich.  
*Ball Mills, Pebble Mills, Mixers, Tanks, Side Entering Agitators.*  
C. Zink E. Joanne C. Leith  
F. Koepke  
— See Advertisement Page 74 —
- Booth No. 85-86 FOSTORIA PRESSED STEEL CORP.  
Fostoria, Ohio  
*Infrared Ovens, Paint Heating Systems.*  
E. Bates I. Barber R. Jeffery  
R. Estabrook  
— See Advertisement Page 92 —
- GARDNER LABORATORY, INC.  
Bethesda, Md.  
*Instruments for measuring color, gloss, and reflectance.*  
F. Weekes P. Gardner J. Dugger  
R. Griffes M. Cattaro H. Gardner
- Booth No. 5-6 GENERAL ELECTRIC CO.,  
Pittsfield, Mass.  
*Alkyd resins for trade sales and industrial finishes; Resin exhibiting heat and chemical resistance properties; Silicone products for formulators (defoamers, anti-float fluid, alkyd compatible resins, water-soluble and water repellent resins).*  
H. Aldrich H. Lanson W. Dugan  
J. Blegen J. Loritsch G. Hartley  
F. Burnett M. Bard H. Lauroesch  
C. Gross B. Bulozdy L. Sacks
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D. Nesso A. Polson
- Booth No. 90 GRAY CO., INC.  
Minneapolis 13, Minn.  
*Paint Supply Pumps, Drum Pumps.*  
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D. Hudepohl S. Fletcher G. Dempler  
J. Mazia
- Booth No. 102-103 HARSHAW CHEMICAL CO.  
Cleveland 6, Ohio  
*Driers, Red and Yellow Pigments, Specialty-Type Pigments.*  
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A. Giordano J. Dickenson R. Hummel  
J. Spencer C. Parks
- Booth No. 98 HECKEL PUBLISHING CO., INC.  
Philadelphia, Pa.  
*Book Exhibit.*  
J. Weiss F. Connolly D. Simcox
- Booth No. 114 HERCULES FILTER CORP.  
Paterson, N. J.  
*Filtration Equipment, Filter Sheets, Filter Media.*  
H. Jones J. Gaul G. Zebora  
V. Tozzi C. Hunziker
- Booth No. 53-54 HERCULES POWDER CO.  
Wilmington, Del.  
*Synthetic Resins, Chlorinated Rubber, Pentaerythritol, Ethyl Cellulose.*  
Representatives from all departments.  
— See Advertisement Page 90 —
- Booth No. 99 HERMAN HOCKMEYER & CO.  
New York 59, N. Y.  
*Mixing Equipment.*  
S. Klein H. Hockmeyer
- Booth No. 81-81A SPENCER KELLOGG & SONS, INC.  
Buffalo 5, N. Y.
- Booth No. Linseed, Soybean, Castor, Coconut Oils.  
A. Schwarzman D. Farstad R. Nagel  
V. Auer R. Beyer D. McCready  
D. Healy  
— See Advertisement Page 82 —
- Booth No. 113 KENT MACHINE WORKS, INC.  
Brooklyn 1, N. Y.  
*Roller Mills and Mixers.*  
E. Peters F. Weitzner  
— See Advertisement Page 104 —
- Booth No. 44-45 KINETIC DISPERSION CORP.  
*Paint, Lacquer and Ink Mills.*  
C. Kew F. Hunter L. Behrns
- Booth No. 93-94-95 LACQUER INFORMATION CENTER  
*Latest Developments in Lacquer Technology, Formulation, and Application.*  
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Carbide and Carbon Chemicals Co. Bede Products, Inc.  
Enjay Co., Inc. Binks Manufacturing Co.  
Antara Chemicals Div. of Dualheat, Inc.  
General Dyestuff Corp. The Fostoria Pressed Steel Corp.  
Hercules Powder Co. Spee-Flo Co.  
Sharples, Inc.
- Booth No. 89 LEAD INDUSTRIES ASSOCIATION  
New York 17, New York  
*Metal Protective Paints, House Paints.*  
C. Cherry C. Vander Valk
- Booth No. 35 J. M. LEHMANN CO., INC.  
Lyndhurst, N. J.  
*Roller Mills, Mixers, Dispersion Equipment.*  
C. Hoffman C. Dittmann J. Sariat  
G. Linden A. Hawkins  
— See Advertisement Page 19 —
- Booth No. 36 METALS DISINTEGRATING CO., INC.  
*Aluminum and Gold Bronze Pigments.*  
H. Hall H. Collins H. Shaffer  
J. McKinley  
— See Advertisement Page 94 —
- Booth No. 66 MINERAL PIGMENTS CORP.  
Muirkirk, Md.  
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H. Weisberg J. Devne A. Insley
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St. Louis, Mo.  
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J. Constance W. Lang J. Sparkman
- Booth No. 115 MOREHOUSE INDUSTRIES  
Los Angeles 65, Calif.  
*Mills for Manufacturing All Types of Coatings.*  
M. Horst J. Taylor G. Missbach  
D. Grubbs N. Klein
- Booth No. 110 NAFTONE, INC.  
New York 22, N. Y.  
*Driers, Copper-8-Quinolinolate Emulsion, Bodying Agent, Lecithin Compound.*  
A. Applegate A. Searl E. Phueger  
H. Johnson A. Fleming J. Smith  
G. McTavay C. Klebsattel  
— See Advertisement Page 23 —

Booth No.  
**NATIONAL STARCH PRODUCTS, INC.** 106  
 New York 16, N. Y.  
*Polyvinyl Acetate Emulsions and Resins.*

H. Zahndt J. Clay J. Dillon  
 J. Stern R. Delack D. Tikker

— See Advertisement Page 21 —

**NEVILLE CHEMICAL CO.** 81B-82  
 Pittsburgh 25, Pa.  
*Coumarone and Petroleum Resins, Shingle Stain Oils, Solvents.*

L. Dauler E. Isenberg J. Freeman  
 W. Wald W. Craig D. Marsh  
 J. Villing R. Lauderbaugh

— See Advertisement Page 81 —

**NPCO CHEMICAL CO.** 37  
 Hanison, N. J.  
*Latex Paint Antifoamers, Thickeners, Additives, Flatting and Suspension Agents.*

F. Licata P. DeSario G. Davis  
 E. Welerich R. Lakey W. Brewer  
 T. Campbell F. Leonard Miss E. Taylor

— See Advertisement Page 106 —

**NUODEX PRODUCTS CO., INC.** 7-8  
 Elizabeth, N. J.  
*Wetting, Dispersing, Anti-settling agents.*

L. Roon A. Minich D. Roon  
 W. Clark C. Kaiser K. Price  
 W. Kobik E. Burns J. Skeen  
 F. Daniel W. Houston A. Brumberger  
 E. Horgan F. Greenawald F. Dwyer  
 M. Goll R. Denning F. Ritter  
 L. Surano

— See Advertisement Page 72 —

**PACIFIC VEGETABLE OIL CORP.** 24  
 San Francisco, Calif.  
*Drying Oils.*

R. Hammond

— See Advertisement Page 89 —

**PATTERSON FOUNDRY & MACHINE CO.** 96-97  
 East Liverpool, Ohio  
*Steel Ball Mill, Thinning and Tril-ing Mixer.*

R. Cawood H. Brown W. Henszey  
 K. Vallentine P. Dolan G. Milburn  
 W. Hood W. Bailey

**PENNSYLVANIA FALK CHEMICAL CO.** 77  
 Pittsburgh 22, Pa.  
*Petroleum resins.*

Representatives from all departments.

— See Advertisement Page 97 —

**PLASKON PRODUCTS, BARRET DIV.** 107  
 Toledo 6, Ohio

*Coating Resins (Alkyds, Modified Alkyds, Silicone Alkyds, Ureas, Melamines, Modified Phenolics, Maleic Resins, Ester Gums).*

Ellis Ginsler Wood  
 Delaney Lemley Yanason  
 Hoppens Picou Renzel  
 Boardman Stumpe Wallace

**POLAK & SCHWARZ** 109  
 New York 14, N. Y.  
*Masking Odors.*

L. Davids G. Bitzick H. Fields

Booth No.  
**R-B-H DISPERSIONS** 57  
 Bound Brook, N. J.  
*Dispersions.*

O. Bluthardt W. Rost R. Gallowitch  
 H. Norris R. Lynch

**REICHOLD CHEMICALS, INC.** 59, 60, 61, 62  
 White Plains, N. Y.

*Synthetic Resins and Chemical Pigment Colors.*

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 F. Smiles C. Arnold R. Fellows  
 J. Weinmann P. Swisher R. Ulrich  
 L. Blackburn R. Mactaggart P. Bloomquist  
 L. Rockenbach

— See Advertisement Second Cover —

**RHEEM MFG. CO.** 88  
 South Gate, Calif.  
*55 Gallon Lithographed Drums.*

A. Cassidy F. Blume G. Tucker  
 R. Hard R. Crosby

**ROHM & HAAS CO.,** 82A-83  
 Resinous Products Div.  
 Philadelphia 5, Pa.

*Synthetic Resins.*

G. Allyn G. Sohl F. LaMar  
 H. Grinsfelder M. Wight W. Prentiss  
 L. Klein H. Wood V. Sheets  
 B. Lyons H. Cheetham N. Timmons  
 H. Scheifele L. Jaggard F. Wilkinson

**CHARLES ROSS & SON CO.** 104  
 Brooklyn 8, N. Y.

*Mixing & Grinding Machinery.*

L. Ross J. Patte C. Ross

— See Advertisement Page 76 —

**ROSS & ROWE, INC.** 58  
 New York 4, N. Y.

*Lecithin, Modifier for Latex Paints, Viscosity Modifier—a bodying and puffing agent.*

W. Hilty W. Schlesinger D. Elliott  
 J. McAuley

— See Advertisement Page 119 —

**SELAS CORP. OF AMERICA** 111  
 Philadelphia 34, Pa.

*Small Varnish Cooking Selling.*

R. Jordan W. Smith C. McFadden

**SHELL CHEMICAL CORP.** 10-11-12  
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*Alcohols and Ketones for Lacquers and other Finishes, Epon Resins.*

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 G. Huldum J. O'Connell J. Cunningham  
 W. Williams J. Robins R. Buller  
 W. Lowery M. Ellison D. Ware  
 C. Lee E. Soogin H. Howard  
 D. Bradley F. Swackhamer R. Fitzsimmons  
 W. McCormick

— See Advertisement Page 6 —

Booth No.  
**SHELL OIL CO.** 73-74  
 New York 20, N. Y.  
*Petroleum Solvents.*

T. Shaffer J. Thomas J. Gilbert  
 F. Frow K. Nonweiler C. Irwin  
 B. Conn E. Turnau G. Carnahan  
 A. Myers W. Day R. Sedlak  
 A. Ferrucci C. Huntoon W. Kingsbury  
 E. Larson W. Sundheimer J. Dixon

— See Advertisement Page 3 —

**SPARKLER MFG. CO.** 21  
 Mundelein, Ill.  
*Varnish Filters.*

Representatives from all departments.

**SPECIAL EQUIPMENT CORP.** 41  
 Greenwich, Conn.  
*Paint Heaters.*

G. Rhine F. Drake P. D'Amario  
 H. Simonds C. Cleworth G. Ahrens

**TROY ENGINE & MACHINE CO.—** 4  
 Troy, Pa.  
*Angular Mixers, 3-Roll Mills.*

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 E. Brasington A. Prior R. Stuckless

**U. S. INDUSTRIAL CHEMICALS CO., Div. of National Distillers** 13-14  
 Products Corp.  
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 Weismann Gruber Schelling  
 Lubman Byerly Souders  
 Olotka

**U. S. STONEWARE CO.** 1  
 Akron, Ohio  
*Ball Mills, Mill Jars, Jar Mills, Grinding Media.*

H. Farkas S. Craig S. Lewis

— See Advertisement Page 88 —

**UNION BAG & PAPER CORP.** 26-27  
 New York 7, N. Y.  
*Tall Oils.*

A. Doran C. Thorsen L. Zacharakis  
 C. Fiscella

**UPRESSIT PRODUCTS CORP.** 108  
 New York 17, N. Y.

*Closures and Taper Proof Seals.*

Various Representatives.

**T. F. WASHBURN CO.** 64  
 Chicago, Ill.  
*Paint Vehicles.*

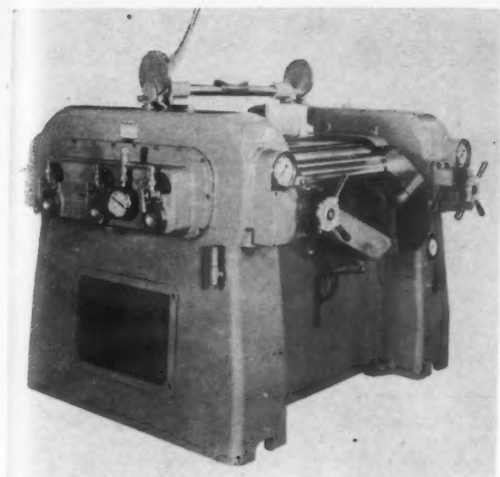
L. Smith M. Magee N. Contos  
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**C. K. WILLIAMS & CO.** 79  
 East St. Louis, Ill.  
*Data and Panels of Iron Oxide Pigments.*

C. Burris E. Kroepel W. Murray  
 I. Clare R. Linnett M. Parker  
 P. Dubbeldeman A. Thayer S. Richards  
 E. Green C. Lippincott R. Stephens  
 R. Hathaway C. Love R. Stuebing  
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**WITCO CHEMICAL CO.** 34  
 New York 16, N. Y.  
*Paint Driers, Metallic Stearates, Esters, Carbon Black.*

M. Minnig E. Wagner S. Armato  
 M. Vaccaro W. Wishnick R. Wendt



## Self-Positioning Roll For Three Roll Mill

*Provides flexibility of operation, removes guess work in mill operation, improves quality control, makes use of 4 or 2 point adjustment, claims manufacturer.*

IN recent months there has been evidence of an increased interest within the Paint Industry toward the principle of the self-positioning or "floating" roll as applied to the horizontal three roll paint mill. Producers of coatings are alert to any new development in roller mill technology which might lead to an increase in productivity and reduced production costs.

The J. M. Lehmann Company, Inc. is now making available in its line of production size horizontal three roll mills, the self-positioning roll principle that has been offered is some of their other models. The selective "Float-O-Matic" feature, as it is called, is made available in the company's horizontal three roll "Sight-O-Matic" paint mills. With the selective "positioning" control, one paint mill offers a choice of floating or fixed center-roll operation, according to the manufacturer.

The user may operate with either four point or two point adjustment, with roll pressures in either case controlled by "Sight-O-Matic" roll pressure gauges at the adjustment points. Where a difference in pressure between the feed and take-off rolls is desired, the center roll is fixed and four instrument guided adjustments are made, one at each end of the two movable rolls. This mill can be converted to a two point adjustment system with self-aligning or "floating" roll in the center position, resulting in equalized

pressures on each side of the center roll.

Under either the four point or two point adjustment system, it is reported that parallelism of the roll faces is controlled by easy to read "Sight-O-Matic" roll pressure gauge readings. With the center roll fixed, the operator turns the handwheel at each end of the slow and fast rolls and reads the pressure developed on the indicating gauge at each adjustment point. Either a differential or equalization of the pressure of the two movable rolls against the fixed center roll can be obtained by reference to the gauge readings.

Where the production supervisor has determined that an equalization of pressure between the feed and take-off rolls is desired, the mill can be converted to a "floating" roll mill by a simple turn of two cam locking pins which releases the center roll. The take-off roll then becomes the fixed roll in the series and instrument guided adjustments of roll pressure are made at each end of the slow roll on the feed side of the mill. Under this mode of operation, the operator can load the hopper and set the roll pressures from the same side of the mill.

At the end of the run when the handwheels are turned in the reverse direction to relieve roll pressure, the rolls are separated by a system of springs mounted between the bearing housings on the roll journals.

Should the operator wish to revert to the fixed center roll condition, a quick turn of the cam locking pins anchors the middle roll once again. A convenient indicator tells the operator whether the center roll is in its "fixed" or "floating" condition.

Instrumentation is provided not only for roll pressure settings, but also for all other important mill adjustments. Control of the pressure of the take-off knife against the fast roll is provided by a dial indicator in a pneumatic pressure system. Only that material which is scraped off the fast roll by the take-off knife can be counted as useful production. The pressure of the take-off knife must be great enough to completely remove the paint film from the roll, but not so great as to cause excessive blade wear or possible contamination of the product. The degree of knife pressure can be adjusted to the amount required for efficient take-off. The turn of a handle opens or sets the knife for operation. It is claimed that positive regulation prevents damage to both the knife and the roll and assures complete film removal.

These mills are also equipped with dial thermometers at the water intake manifold and all roll water outlets to enable the operator to maintain roll temperatures at the proper level.

For details write to J. M. Lehmann Co., Inc., 550 New York Avenue, Lyndhurst, New Jersey.

# Federal Procurement Review

## HOW TO RECOVER COSTS ON TERMINATED GOVERNMENT CONTRACTS

By HARRY GROSS

*In the interest of those engaged in or contemplating doing business either directly or indirectly with the Government, we are pleased to present this initial article on a topic of timely interest by an authority who has had broad experience in this particular field.*

*Reprints of this article are available from Harry Gross, 1 W. 34th St., New York 1, N. Y.*

With the application of the new Navy policy for drastically curtailing its own paint production facilities, paint and coatings manufacturers can look forward to an overall increase in government business, either as prime contractors or as subcontractors. However, handling government prime contracts or subcontracts entails particular problems which require special care and attention. One potential vital problem which can cause great hardship and difficulty is to recover all costs on terminated contracts or subcontracts. There is always the possibility of terminations resulting from changes in formulations as well as from procurement cutbacks. Even those paint manufacturers who have had termination experience following World War II will encounter new difficulties now due to radical changes and stricter procedures contained in current termination regulations.

The new regulations are spelled out in Section VIII Armed Service Procurement Regulations which has replaced the old Joint Termination Regulations and other defense agency directives. This new guide to termination settlements applies

Mr. Gross is a Certified Public Accountant located in New York City specializing in Defense Contracts accounting. He holds a BBA degree in accounting and is a member of the National Association of Cost Accountants and the New York State Society of CPAs. He was formerly in the



service of the United States Government where he performed similar duties in the auditing of defense contracts.

to contracts entered into on or after March 1, 1952. One very important change under the new law is that Government personnel are not exempt from personal financial liability in connection with termination settlements. There is also no longer any statutory exemption from audit and exception by the General Accounting Office. As a result, extensive and more rigid auditing procedures will be employed. Since paint manufacturers are frequently lacking in adequate cost data they may suffer monetary losses as a result.

The new regulations include an outline of allowable and unallowable costs to be considered in the event of termination. Another new provision provides for an adjustment on the terminated portion of the contract reducing the settlement by an indicated rate of loss. This will prevent paint manufacturers from "bailing out"

on loss contracts, which was possible under the old regulations. There is no more provision for payment of interest on claims pending settlements, but partial payments are provided for.

Under the new regulations the settlement proposal on fixed price contracts is limited to the "Inventory Basis" which is preferred by the Government, or the "Total Cost Basis" which requires the contracting officer's approval. The latter, however, is more favorable to the paint and coatings industry, particularly where mostly development work has been performed. The "Percentage of Completion Basis" is no longer permitted, thus eliminating the acceptance of estimated costs. On cost type contracts the regular procedure for reimbursement will usually be continued, with an adjustment made of any fixed fee. Whatever method is employed the contractor or subcontractor is required to substantiate his termination claims by standard or historical cost records. Failure to do so will cause long drawn out proceedings, since Government representatives will be extremely reluctant to approve costs which cannot be properly supported.

When a notice of termination is received all work should be stopped on the subject contract and all subcontractors should be informed to do likewise. The terminated inventories of finished paints, batches in process, special solvents and cans, etc. should be segregated and the analysis should be made of cost accounting

(Turn to page 113)

For the Chemical Industry

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Acetone  
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Ethyl Ether  
Isopropyl Ether  
Dicyclopentadiene  
Naphthenic Acids  
Iso-Octyl Alcohol  
Decyl Alcohol

### CHEMICAL

PETROHOL 91  
PETROHOL 95  
PETROHOL 99  
Iso-Octyl Alcohol  
Decyl Alcohol  
Tridecyl Alcohol  
Dicyclopentadiene  
Isoprene  
Butadiene  
Ethyl Ether  
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And these cans we send you fast are *good* containers. Our exclusive

"Tripletite" lid provides a 50% increase in guard points against oxidation and formation of wasteful paint skin. In lid and lid seat, metal binds to metal at three points instead of the usual two.

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## NEWS DIGEST



Roy H. Kienle

### Dr. Roy H. Kienle To Keynote Federation Paint Club Meeting

Dr. Roy H. Kienle, director of applied research of Calco Chemical Division, American Cyanamid Company will present the Keynote Address at the Annual Meeting of the Federation of Paint and Varnish Production Clubs in Atlantic City, N. J., October 27-30.

Dr. Kienle presented the first Annual Mattiello Lecture at the Annual Meeting held in 1949. His subject then was "Physical Chemical Research in the Protective Coatings Industry." In June of this year he gave a paper on, "Observations on Optical Properties of Paint Films," at the Biennial Conference of the Oil and Colour Chemists' Association, at Eastbourne, England.

Dr. Kienle has been associated with Calco for 20 years, having risen from a research chemist to his present post, attained in 1952.

During World War I, Dr. Kienle served as a First Lieutenant with the Chemical Warfare Service. In World War II, he served as a civilian with the Office of Scientific Research and Development, War Production Board.

Dr. Kienle holds a B. S. degree in chemistry from Worcester Polytechnic Institute, an M.S. degree in chemistry from Union College, and a Ph.D. degree in physical chemistry from Rutgers University in 1938.

Organizations he is affiliated with include the New York Paint and Varnish Production Club, the American Chemical Society, American Institute of Chemists, Faraday Society (England), New York Academy of Sciences (England), Society of Dyers and Colourists (England), Society of Chemical Industries, American Association of Textile Chemists and Colorists, and the Association of Research Directors.

### FIFTY YEAR CLUB

The Fifty Year Club of the National Paint, Varnish and Lacquer Association has invited all executives, superintendents and salesmen, who have served 50 years or more in the paint, varnish and lacquer industry, to join its club.

Eligible members of the Association are urged to enroll in the Club before the Association's Atlantic City, N.J., Convention scheduled October 26-28.

The Fifty Year Club was organized in 1928.

### Rapid-Drying Coating Process

#### Developed by Armour Foundation

A technique which shortens the drying time on coated products from 24 hours to from 2 to 20 seconds has been developed by the Armour Research Foundation of Illinois Institute of Technology in a project sponsored by the Meyercord Company.

The process for rapid drying of protective and decorative coatings of inks, paints and varnish was unveiled recently in a pilot plant preview at the Foundation's Chemistry and Chemical Engineering building in Chicago.

Leonard H. Knopf, president of Meyercord, said the process, called "Chem-Dry," is now available to industry. He added that each industry would require engineering and production techniques especially designed for its own operations.

Based on a chemical reaction between the applied coatings and sulfur dichloride vapor instead of the commonly accepted polymerization or oxidation, the technique is said to improve the quality of coatings with reduced costs.

C. E. Thorp and L. C. Kinney of the Foundation's Chemistry and Chemical Engineering Department developed the process two years ago, originally designed to be used exclusively in printing.

A series of seemingly insurmountable obstacles almost led to the abandoning of the project to develop a quick-drying technique for ink when it was proposed that the process be applied to other fields. The Meyercord Company agreed to sponsor research in the new applications.

In addition to its uses in the graphic arts, the process is applicable in the metal, wood, glass and fabric industries.

### Harry L. Ericson, chief chemist for Continental Carbon, Dies

Harry L. Ericson, chief chemist for the Continental Carbon Company in Amarillo, died August 4. He was 33.

Prior to his transfer to Continental in 1951, Mr. Ericson worked in the carbon black division of Witco Chemical Company for three years, both in New York and Chicago.

### 3-M Appoints Baker Company Rep. For its Iron Oxide Pigments

The Minnesota Mining & Manufacturing Company, St. Paul 6, Minn., has appointed the M. H. Baker Company of Minneapolis, Minn., as mid-west representative for its synthetic iron oxide pigments. The territory includes all of Minnesota, part of Iowa, and Omaha and Lincoln, Neb. The pigments are used in the manufacture of paints for



M. H. Baker

bridges, boxcars, barns, and for brick, block and cement building units.

### Stresen-Reuter Installs Grinding Equipment in its Illinois Plant

Fred'k A. Stresen-Reuter, Inc. has installed new grinding equipment in its Bensenville, Ill., plant.

Stresen-Reuter will provide custom dry grinding service to the paint industry.

### U. S. Tariff Commission Combines Releases on Organics and Resins

Beginning with the October, 1953, issue, the United States Tariff Commission's Facts for Industry Series 6-2, and Facts for Industry Series 6-10 periodicals will be issued as one periodical on the 20th day of the second month following that covered by the release, unless this day is a Saturday, Sunday or Holiday, in which case the release will be delayed one or two days.

Series 6-2 gives monthly production data of specified synthetic organic chemicals, and Series 6-10 relates to monthly data of production and sales of synthetic resins and plastic materials.

### Chemical Institute of Canada Schedules 1953-54 Meetings

The Chemical Institute of Canada has scheduled the following meetings:

Nov. 19-20, 1953. 5th Canadian High Polymer Forum, London Library Museum, London, Ontario. (sponsored jointly by the C.I.C. and the National Research Council of Canada).

Feb. 18-19, 1954. 6th Divisional Conference, Analytical Chemistry Division, Royal Hotel, Guelph, Ontario.

Feb. 25-26, 1954. 8th Divisional Conference, Protective Coatings Division, Montreal.

Mar. 1-2, 1954. 3rd Divisional Conference, Chemical Engineering Division, Montreal.

June 21-23, 1954. 37th Annual Conference and Exhibition, Royal York Hotel, Toronto.

Sept. 10-11, 1954. 2nd Western Regional Conference, Vancouver, B.C.

## NEWS DIGEST

### Oil Chemists Society Schedule 27th Meeting Nov. 2-4 in Chicago

Papers to be presented at the drying oil session of the 27th Annual Fall Meeting of the American Oil Chemists Society scheduled at the Sherman Hotel, Chicago, November 2-4, have been announced by C. G. Moore, chairman of the session.

They include: Intra- and Inter-Polymerization of Heat-Bodied Oils, D. H. Wheeler and R. F. Paschke, General Mills, Inc., Minneapolis, Minn.; Ozonization of Oils, N. L. Carrick, University of Michigan, Ann Arbor, Mich.; and The Effect of Estolide Content on Drying Properties of Dehydrated Castor Oil, W. von Fischer, Case Institute of Technology.

The drying oil session will be held on the afternoon of November 2.

Dr. Wouter Bosch, chairman of the Paint School of North Dakota Agricultural College, will discuss drying oils at a student session scheduled the afternoon of November 3.

General chairman of the technical program is H. T. Spanuth, Wilson and Co., Chicago. He will be assisted by Mr. Moore, and the following: H. C. Black, Swift & Co., industrial processes; E. L. Boley, Armour Auxiliaries, soaps and detergents; H. J. Harwood, Armour & Co., fatty acid derivatives; H. R. Kraybill, American Meat Institute Foundation, fats in animal feeds; S. J. Rini, Kraft Foods Company, salad dressings, margarine, etc., and K. F. Mattil, Swift & Co., student session.

General chairman of the meeting is A. F. Kapecki, Wurster & Sanger, Inc., Chicago. Exhibits chairman is R. H. Rogers, Jr., Swift & Co.

### Two Paint Companies Elected to Brand Names Foundation

Two paint companies, Devoe and Reynolds Co., New York, and Barreled Sunlight Paint Co., Providence, Rhode Island, were elected to Brand Names Foundation membership at a recent meeting of the Executive Committee of Brand Names Foundation, Inc., New York, N. Y.

George H. Fitch, Devoe and Reynolds director of advertising, and Howard F. Eastwood, Vice President, Barreled Sunlight Paint Co., will represent the companies with the Foundation.

The manufacturing member companies of the Foundation market more than 3,600 well-known brand names.



Architect's drawing of one million dollar plant to be constructed in Windsor, Ontario, Canada, by the Rinshed-Mason Company of Canada, Ltd., formerly named the Standard Paint and Varnish Co. Rinshed-Mason purchased Standard late in 1952, and had modernized the Windsor plant when it burned down last May. Inset, Frederick G. Weed, R-M president.

### Rinshed-Mason Rebuilding Fire-Ruined Canadian Paint Plant

A new paint plant will be built to replace the fire-ruined 55-year old Standard Paint and Varnish Company of Windsor, Ontario, Canada, which has been renamed the Rinshed-Mason Company of Canada, Limited, it was announced recently by Frederick G. Weed, president.

Mr. Weed also stated that paint production is expected to be resumed

in Windsor by December, 1953. Final construction is scheduled for completion in February, 1954.

Rinshed-Mason purchased Standard late in 1952 and had installed a modern laboratory and quality control facilities when the plant burned down in May of this year.

Total rebuilding will cost an estimated one million dollars and will include more than 50,000 square feet of floor space.

### Educational Institutions Conduct Special Spray Painting Courses

A course in spray painting was included in Kent State University's summer session curriculum this year for those seeking a master's degree in industrial arts.

L. W. Lammiman, technical service manager of the DeVilbiss Company, Toledo Ohio, which cooperated with the Ohio school in conducting the course, recently appeared at Kent State to address teachers attending the summer session. He discussed the finishing of industrial projects and traced the history of spray painting and finishing materials from the early days of painting automobiles to today's mass production methods of spray finishing.

DeVilbiss has also cooperated with the Case School of Applied Science, North Carolina State University and Wayne University in conducting special courses in finishing and paint chemistry.

For further spray finishing education the company maintains a year-round school at its main plant in Toledo. Information may be obtained by writing DeVilbiss at 300 Phillips Ave.

### Emery Industries Expands its Dimer Acid Production Facilities

To meet increasing demand for Dimer Acid, Emery Industries, Inc., Cincinnati, Ohio, has expanded their facilities for producing this long-chain dibasic acid.

At the same time, improvements in processing methods will produce a lighter colored product, according to Robert F. Brown, sales manager of Emery's Chemical Division.

Full scale production of the new product will begin in December, he said. Limited quantities of the lighter colored Dimer Acid are available for experimental work, Mr. Brown added.

### J. E. Paul, Sharples Corp. Philadelphia Manager, Dies

J. E. Paul, Philadelphia District Manager of The Sharples Corporation, Philadelphia, Pa. died suddenly at his home on September 1. He was 63.

Mr. Paul had been associated with the Sharples Corporation for 29 years. He was active in the Coke and Blast Furnace Association and the The American Society of Naval Engineers.



### New N. Y. C. Building To House Binney & Smith Activities

Binney & Smith Company, will move to new headquarters at 380 Madison Ave., at 46th St., New York City sometime this month, it was announced recently by Allan F. Kitchel, president.

The timing of the move is contingent on completion of the modern office building which will house all of Binney & Smith's New York activities. The firm's telephone number and post office zone will remain the same.

### Moore Appoints Sales Agents for Pa., New Jersey and New York State

The John B. Moore Corporation, Nutley, N. J., has appointed the Pioneer Salt Company of Philadelphia, Pa., as sales agent for their solvent products in Eastern Pennsylvania and South Jersey.

In addition to the Pioneer appointment, Moore has named Donner & Co., Winnipeg, Manitoba, as sales agent to handle Western Canadian sales, and I. Q. Sarlin, Moore process engineer, to supervise sales in lower New York State and New York City.

### Industrial Research Firm To Open Liason Office in Chicago

Arthur D. Little, Inc., Cambridge, Mass., will open a new midwest liason office in Chicago, it was announced recently by Earl P. Stevenson, president of the company.

John R. Kirkpatrick will manage the office. His experience includes participation in the industrial development activities of Arthur D. Little, Inc., on behalf of the Puerto Rican Government.

### Buffalo Paint Firm Expands Dealer Distribution Program

The McDougall-Butler Company, Buffalo, New York, has announced plans for making its line of paints available to additional paint dealers.

Plans for the firm's wider dealer distribution program and increased sales promotion efforts were presented to McDougall-Butler executives, branch managers and sales representatives at a special sales meeting held in the company's Buffalo offices on September 14-15.

The conference agenda included technical discussions, information of new advertising plans and a special presentation on Latex paints by Dow Chemical Company representatives.



The Rowe Paint & Varnish Company, Inc., Niagara Falls, N.Y., recently held open house at their newly modernized quarters in Niagara Falls. Plant contains new equipment and enlarged facilities. Inset, Rowe President, Ray T. Crowell, who bought firm in 1940.

### Concord Chem. Names Calif. Agent for its Cresylic Acid

The Concord Chemical Company, Moorestown, New Jersey, has appointed the William C. Loughlin & Company, San Francisco, as sole representatives for their line of industrial waxes and Cresylic Acid in the State of California.

Loughlin will also handle imported Cresylic Acid in that state for Concord Chemical.

### National Aniline Opens New Sales Offices in Atlanta, Ga.

National Aniline Division, Allied Chemical & Dye Corporation, has opened new sales offices at 1216 Spring St., N. W., Atlanta, Georgia.

John Boykin, previously resident representative in Atlanta, has been named branch manager.

National Aniline's new sales-service facilities include a fully-staffed application laboratory.

### Committee D-14 on Adhesives Holds Semi-Annual Meeting in Michigan

Committee D-14 (on Adhesives) of the American Society for Testing Materials, held its semi-annual meeting in Wyandotte, Michigan, October 14-16, at Wyandotte Chemicals Corporation's new research center.

Technical meetings were held October 14 and 15, and covered such adhesives topics as strength properties, analytical methods, permanence, working properties, specifications, nomenclature and definition, research problems, and electrical properties. The meeting also included an informal round-table discussion on the "Fundamental Theory of Adhesives."

The three-day meeting was concluded with visits to several of the Detroit area plants on October 16.

Dr. Robert Shane of the Wyandotte Chemicals Corporation was Detroit area chairman for the meeting.

### Dept. of Agriculture Withdraws House Paint Classification System

The United States Department of Agriculture withdrew recently endorsement of its classification system for house and barn paints which was established in 1942, and published in Technical Bulletin No. 804, "Classification of House and Barn Paints."

Action was taken after consultation with representatives of the paint industry, including spokesmen for the National Paint, Varnish and Lacquer Association.

The Department's decision, approved by Secretary of Agriculture, Ezra Taft Benson, was determined by evidence that there was a misunderstanding of its position on paint classification.

In withdrawing its classification system for house and barn paints, the Department said that use of the recommended classification has led to representations in advertising which may be construed to imply its endorsement of a particular paint rather than a suggested method of classifying these paints.

The Department added, however, that action on the classification system in no way repudiates the technical facts upon which the classification was based.

Cooperation has been assured by the paint industry in working with Department technicians toward improving the system of classification system for house and barn paints, the Department said.

### Cleveland Firm Expands Its Line of Spray Enamel Paints

The Sheffield Bronze Paint Corporation, Cleveland, Ohio, has expanded their line of "Quik-Spray" spray enamels.

Newspaper mats, envelope enclosures window streamers, color cards and display racks are being made available by Sheffield for interested dealers.



### Du Pont Constructing Ilmenite Plant and Mine in Northern Fla.

A new 3 million dollar mine and plant to produce ilmenite, the raw material for titanium metal and pigments, will be constructed for the Du Pont Company in north central Florida, near Lawtey.

Construction will start within the next six weeks. The plant and mine are expected to be in operation early in 1955.

The Humphreys Gold Corporation of Denver, Colo., will build and operate the mine and plant for Du Pont. Humphreys also constructed and now operates a similar ilmenite operation for Du Pont at Trail Ridge, Florida, near Starke, and about 17 miles north of the new site.

Ilmenite is the principal titanium-bearing ore available to industry.

### DeVilbiss Spray Painting School Offering Course Starting Dec. 14

The DeVilbiss Company School of Spray Painting, Toledo 1, Ohio, will offer a course of instruction for contract painters and their representatives starting December 14, for five days.

Classes will be held in the school quarters, now in operation, adjoining the main plant in Toledo.

The school is now completing its twenty-seventh year of training in the theoretical and practical phases of spray painting and is available on a tuition-free basis to users of DeVilbiss equipment.

Applications for the class should be sent now to the DeVilbiss Company, Toledo, Ohio. Those interested may request School Form INS-753-A. There is no charge for attending, the only expenses being transportation, board and lodging.

### P. Mayfield Elected President of Agricultural Chemicals Assoc.

Paul Mayfield, general manager of Hercules Powder Company's Naval Stores Department, was elected president of the National Agricultural Chemicals Association at the NACA's Annual Convention held recently in Spring Lake, New Jersey.

He succeeds Arthur W. Mohr, president of the California Spray-Chemical Corporation, Richmond, Calif.

Mr. Mayfield, has been vice president of the NACA for the past two years.



First tank of High Boiling Phenols as it was shipped on August 17, 1953, from the Institute, West Virginia, coal-hydrogenation pilot plant of Carbide and Carbon Chemicals Company. This shipment of High Boiling Phenols will be used by a resin manufacturer.

### American-Marietta Co. Acquires Universal Concrete Pipe Company

American-Marietta Company, Chicago, Ill., has acquired a controlling interest in the Universal Concrete Pipe Company of Columbus, Ohio.

Universal became a subsidiary of American-Marietta through an arrangement extending payment over a period of years. No shares of American-Marietta were involved in the transaction.

American-Marietta's newly acquired firm has 26 plants producing pipe and other products.

### Neville Changes Corporate Name To Neville Chemical Company

The Neville Company, Pittsburgh, Pa., has announced the changing of their corporate name to Neville Chemical Company.

The change was made to more readily identify the scope of Neville products and services, a firm release said.

### Glycerine Assoc. Names Judges for 1953 Research Awards Competition

The Glycerine Producers' Association has announced the names of the judges for the 1953 Glycerine Research Awards Competition, granted for the three most outstanding research papers dealing with the chemical, physical or physiological properties of glycerine, or with materials which contain or are derived from glycerine.

Judges named are: Walter J. Murphy, Editor, "Chemical & Engineering News;" Dr. Morris Embree, Distillation Products Corp., Rochester, N. Y.; and Dr. W. C. Ault, Eastern Regional Research Laboratories, United States Department of Agriculture.

The awards consist of an honor plaque and cash stipend of \$1,000, and two honor certificates with cash stipends

of \$300 and \$200 respectively. Closing date for nominations to the awards is November 1, and the awards will be presented at the Associations Annual Meeting in January 1954.

### Panel on Fire-Retardant Paints Scheduled at Federation Meeting

The widening market for protective coatings that can provide extra fire-retardance at critical points, has led the Federation of Paint and Varnish Production Clubs to schedule a panel discussion on this subject at its annual Meeting scheduled in Atlantic City, N. J., October 27-30.

According to a Federation release, events of the past year show that effective fire-retardant paints can now be formulated and that these paints contain all good properties of generally accepted paint.

Tied in very closely with improved formulation practices are improved methods of test that should prove much more informative and economical than before, the release said.

A panel of experts selected from outstanding technical men in the paint industry will discuss such subjects as patents, formulations principles, raw material properties, test methods and requirements of both the armed forces and the civilian market.

The panel will be handled by M. W. Westgate, of the National Paint, Varnish & Lacquer Association, as Moderator; and will include A. O. Allen, of Vita-Var Corp.; G. S. Cook, General Electric Co.; R. W. Craig, Diamond Alkali; W. E. Cranmer, Philadelphia Naval Shipyard; I. R. Messer, Watson-Standard Co.; B. J. Tyler, Albi Manufacturing Co.; A. W. Van Heuckeroth, Engineer Research and Development Labs; and M. Van Loo, Sherwin-Williams Co.

## NEWS DIGEST

### JDA Paint Div. To Hold Dinner Honoring Leo Roon, Nuodex Pres.

Leo Roon, president of Nuodex Products Company, Inc., Elizabeth, N.J., will be honored for his efforts in behalf of the Paints & Chemicals Division of the Joint Defense Appeal by that group at a dinner in the Hotel Warwick, New York, N.Y., November 12.

The announcement was made by Lester Arnstein, executive vice president of Arnesto Paint Co., Inc., and chairman of the JDA division.

The Paints & Chemicals Industries are helping JDA raise New York's share of the 5 million dollars needed to finance the activities of the American Jewish Committee and the Anti-Defamation League of B'nai B'rith.

Associated with the paint and varnish industry for 30 years, Mr. Roon has been with Nuodex since the company was founded in 1932. He is a member of the National and New York Paint, Varnish & Lacquer Associations, the American Chemical Society, the American Society for Testing Materials and the American Institute of Chemists.

### Soybean Industry To Hold Meeting Urging Changes in Soybean Grading

A meeting of all segments of the soybean industry will be called soon by the board of directors of the American Soybean Association to urge changes in the federal soybean grading system.

The decision was made at the Association's Annual Business Meeting held in St. Louis, Mo., and which closed August 21.

Producers, processors, grain handlers, and other groups interested in soybeans from twenty states, Canada and Japan attended the meeting.

The Association also went on record favoring a trade practice of paying "adequate premiums" for soybeans of better quality than U. S. No. 2 yellow grade.

Increased federal and state funds for research activities, greater expansion of storage facilities and greater emphasis on export markets were other goals set forth at the meeting.

Jake Hartz, Jr., Jacob Hartz Seed Co., Stuttgart, Ark., was elected president at the meeting, succeeding Chester G. Biddle, Biddle Farms, Remington, Ind. Albert Dimond, Lovington, Ill., was elected vice president; and Geo. M. Strayer, Strayer Seed Farms, was re-elected secretary-treasurer.

### Pigment Club

The first meeting of a Production Club for chemists, technicians, and engineers in the chemical and mineral pigment fields was held Oct. 15th. The purpose of this meeting was to organize the club and implement its developments. Those interested in joining this organization should contact Aaron Permut, P. O. Box 494, Elizabeth, N. J.

### Nuodex Products Company Forms Chemical Driers firm in Brazil

A new Brazilian company, Nuodex S.A. Industria e Comercio de Secantes, has just been formed to manufacture chemical driers, fungicides and other additives for the Brazilian paint and ink industries.

Company headquarters will be in Rio de Janeiro; and branches will be established in Sao Paulo and Rio Grande do Sul. Guilherme Levy will manage the firm, a subsidiary of Nuodex Products Co., Inc., Elizabeth, N. J.

### Allied Chemical To Construct Adipic Acid Production Facilities

Allied Chemical & Dye Corporation, New York, N. Y., has announced it will construct facilities for production of adipic acid which is used among other things for the manufacture of adipic esters, utilized as low temperature plasticizers for polyvinyl chloride and in synthetic lubricants capable of functioning over extreme temperature ranges.

Adipic acid will be produced and marketed by Allied Chemical's National Aniline Division.

### Hercules' Paint Industries Show Exhibit To Include New Coatings

The latest developments in chemicals for use in all types of protective coatings will be included in the Hercules Powder Company's Exhibit at the Annual Paint Industries Show in Atlantic City scheduled October 26-31.

Representatives from all Hercules departments serving the protective coatings industries will be at the exhibit during the show.

### U. S. Stoneware To Have Exhibit At Chemical Industries Show

A feature of the Chemical Industries Show scheduled November 30 to December 5, in Convention Hall, Philadelphia, will be the U. S. Stoneware Company's glass tower exhibit, a ten foot high structure designed to give a working demonstration of the low pressure drop and high flooding of the firm's saddle packing.

Other Stoneware exhibits will include a new porcelain body, known as P-4, which is said to extend the characteristics of laboratory porcelains into the industrial field for the first time; armored ball mills in capacities above 100 gallons; and a new type fume washing tower, available in two standard sizes.

### Illinois Firm Construct Tin Can Plant in Birmingham, Ala.

The Vulcan Tin Can Co., Bellwood, Ill., has announced the operation of new manufacturing facilities at the Birmingham, Alabama, plant of the Vulcan Steel Container Company.

The new plant will produce seamed and seamless tin cans in both seamed and seamless style bodies.



Chemists and technicians of the Phelan-Faust Paint Mfg. Company, St. Louis, Mo., working in the firm's newly remodeled and re-equipped Research and Development Laboratory. Equipment includes Stormer Viscometer (left), being used by Dr. Fred Weber to check the viscosity of a Phelan Latex Satin finish. Technician (right), is using Bechman pH Meter.

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## *News of Paint and Varnish Production Club Meetings*

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### **New York**

The New York Paint and Varnish Production Club held its first meeting of the Fall Season on September 3, in its new meeting place at the Brass Rail, 100 Park Avenue in New York City. Two hundred and seventy-one members and guests attended to hear Dr. Roy H. Kienle present an illustrated lecture on "The Optical Properties of Pigments and Pigmented Films." This paper was essentially the one he presented in Europe and England at the Eastbourne Conference last June.

Dr. C. Maresch, a co-collaborator on this paper, was also a guest of the Club and handled the slides during Dr. Kienle's talk.

Dr. Kienle who is the Director of Applied Research, Calco Chemical Division of the American Cyanamid Company, Bound Brook, N. J., has had his paper summarized for the Eastbourne preprint as "Electron, and some optical, micrographs reproduced to illustrate the influence on the optical properties of films, of the following pigment properties: refractive index, light absorption, particle shape and size, degree and method of deflocculation, weathering, gloss and surface imperfections."

Color is a primary property of protective coating films. This color, due to pigments or dyes, can vary according to the character of the light source and the viewing angle. In discussing these phenomena, Dr. Kienle pointed out that the protective coating industry attains color mainly through the use of the light scattering end/or absorption phenomena. Our industry makes very little use of the interference of light as typified by the brilliant colors of the beetle. When color by interference is encountered it is usually a secondary effect due to weathering. For example, the multicolored appearance commonly known as bronzing that occurs on automobile finishes after prolonged exposure.

The optical properties of pigmented films arise from combinations of body color and surface reflectance phenomena. Factors of importance in determining the body color induced by the pigments themselves, which have been studied independently of each other are chemical constitution, crystal form, particle size and dispersion. By means of slides, Dr. Kienle illustrated how the various

factors mentioned above affected the optical properties of pigmented films.

Microscopical investigations of pigments both with the optical and electron microscopes has revealed that most pigments exist usually as small crystals. There are a number of cases where a given pigment can be prepared in several different crystal forms. Frequently each form has its own characteristic color, as for example, lead chromate. The ortho-rhombic form of this pigment being a greener yellow than the monoclinic form.

Particle size has a pronounced effect on color of pigmented films. It has considerable influence on the hiding power, tinting strength, masstone, transparency and dominant wavelength of pigments. In the case of white pigments where body color largely is the result of the scattering of light combined with the variation of index of refraction with wavelength, there is an optimum size for maximum hiding power. Colored pigments also have an optimum size for their most effective hiding power. The relative tinting strength of colored pigments continuously increase as the size decreases until a maximum asymptotic value is reached at extremely small sizes.

Electron micrographs were shown of cross sections of typical latex paints being produced today. Results indicate that a different type of film formation takes place with latex paints than that from organic solvent paints. In the latex system the pigment particles cluster together during film formation leaving large areas of vehicle devoid of pigment. However, in the original latex paint the pigment distribution was shown to be quite uniform.

Dr. Kienle continued, to show how electron microscopical studies of pigmented film surfaces made through the replica technique were useful in explaining the causes of and variations in many surface reflectance phenomena. Surface coating films after they have set and dried thoroughly are frequently considered to be moderately static. Dr. Kienle, however, finds them to be quite dynamic, in that on aging, a wide variety of reactions can take place.

During the regular business session, Club President E. Dale Albert called on Henry Payne to read a resolution to be sent to the family of the late

John Lutz of the Titanium Pigments Corporation.

### **New England**

The initial meeting of the 1953-54 season was held September 17, at the University Club in Boston, Mass. Mr. Fred K. Schankweiler, manager of Chlorinated Products Sales for the Hercules Powder Company, presented a talk on, "The Versatility of Chlorinated Rubber Coating."

Mr. Schankweiler used slides to discuss performances of such coatings under various chemical conditions.

The second meeting of the year was held October 15, also at the University Club. Featured at the meeting was a round table discussion on "Production Planning and Scheduling." Peter B. Marsden of the Sealube Company, served as moderator.

Harold E. Ellsworth, Gordon Menges, Henry B. Twombly and Richard Swanson, all club members, comprised the panel.

### **Philadelphia**

A paper entitled, "The Effect of Pigmentation on the Modern Flat Wall Paints," was presented by F. B. Stieg, manager, Technical Service Laboratories, Titanium Pigments Corporation, at the club's first meeting of the fall and winter season held September 16, at the Engineers' Club in Philadelphia.

Mr. Stieg discussed the effect of vehicle binder, solvent and pigmentation—with particular emphasis on the latter—upon the performance characteristics of alkyd flat wall paints. He gave reasons for the failure of such products to develop ideal performance and suggested testing procedure to simplify the work of the paint chemist.

The speaker also discussed the performance of different types of extenders when combined in various proportions with prime pigments. The talk was illustrated with colored slides.

### **Chicago**

The Club held a joint meeting with the Paint, Plastics and Printing Ink Division of the American Chemical Society and the Chicago Printing Ink Association on September 9th, at the Furniture Club of America.

President Price in his address of welcome recognized several honored guests, including Dr. A. K. Doolittle, Chairman of the Paint, Plastics and Printing Ink Division of the A.C.S. Past Chairmen of the Division, Dr. Malcolm R. Renfrew and Dr. Roy Kienle, all with their wives, and Chairman-Elect Dr. A. C. Zettlemoyer, of the Printing Ink Research Institute, Lehigh University. Past-Chairman Dr. A. C. Elm, was pointed out as the Mantiello Lecturer for this year.

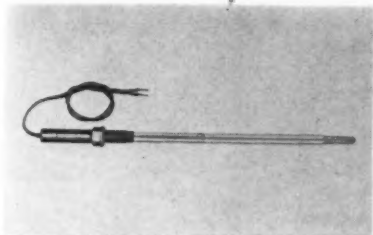
(Turn to page 115)

# RP

# NEW MATERIALS & EQUIPMENT NEW

## A MONTHLY MARKET SURVEY

This section is to keep readers informed of new materials and equipment. While every effort is made to include only reputable products, their presence here does not constitute an official endorsement.



LABLINE

### TEMP. REGULATOR For All Temp. Control

Known as "Rota-Set Thermo-Regulator", this unit can be used for all types of temperature control in water baths, constant temperature rooms, control circuits, etc. Has magnetic setting for adjusting temperatures between -10 deg. C. and +110 deg. C. with graduated scale showing temperature setting. Mercury is hermetically sealed under gas pressure; adjustable tungsten contact moves when magnetic collar is turned. Labline, Inc., 217-221 N. Desplaines St., Chicago 6, Ill.

### LOADING RAMP All-Magnesium

Designed primarily for use in facilitating the loading of yard cars, this ramp, it is stated, makes possible full utilization of power trucks in the loading operations. The ramp supports a load of 13,000 lbs. Its lightness enables one man to move it about the area with ease. It measures 30 ft. long by 6 ft. wide. Equipped with an hydraulic lifting mechanism, the ramp can be raised to any car level. A safety lock anchors the ramp securely to the car during loading. A retractable trailer hitch permits power towing for long distance mobility. Magline, Inc. Pinconning, Mich.

### HYDRAULIC LIFT TRUCK With Interchangeable Forks

Known as "Turnabout Adjust-A-Fork" lift truck, this unit features forks that are easily interchanged. Five standard fork lengths 30", 36", 42", 48", and 60" are available. Simple adjustment on the truck frame also provides a 25" or 27" fork position width. Capacity is 2500 pounds; maneuverable in crowded areas, weighs 299 lbs. and has a full 270 degree steering arc. Rack Hydraulic Equipment Corp., Connellsville, Pa.



RACK

### VINYL PLASTICIZER Non-phthalate, Primary Type

Plastoflex MGB has a low volatility and exhibits a very strong solvent action as well as high tensile strength which makes it of special interest to vinyl compounds. It is also compatible with a great variety of other polymers used in the coating industry. This plasticizer is a modified poly-propylene glycol dibenzoate.

In plastisol formulations, low viscosities are obtained and are maintained for prolonged periods. It is reported that interesting rheological properties of plastisols prepared with this particular resin are obtained and compare favorably with plastisols prepared with other types of plasticizers. Test results in certain resins show the following properties with Plastoflex MGB: good tensile strength,

high modulus of elasticity, high boiling pt., low vapor pressure, and low volatility. Samples and complete data are available upon request from Advance Solvents & Chemical Co., 245 Fifth Ave., New York, N. Y.

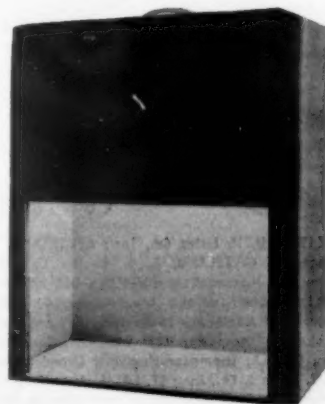
### POLYMERIC MATERIAL Acetylene Type

Resinous material, an acetylene derivative, is a neutral, water soluble, hydrophilic colloid. Available as a white powder. Suggested uses include sealing formulations and coatings of all types. May be crosslinked with formaldehyde to form an insoluble compound. General Aniline & Film Corp., 230 Park Ave., New York, N. Y.

### DAYLIGHT LAMP For Control Work

The "Executive" daylight lamp provides, according to the manufacturer, simulated north sky daylight over a limited area. It is designed for office use to inspect customer and production samples, and where samples to be matched are small, such as paint, ink, paper and plastics. Unit is portable. Macbeth Daylighting Corp., P.O. Box 950, Newburgh, N. Y.

MacBETH



# the chemist's page

**Exkins proved  
most practical  
anti-skinning agents**

## Exkins and their advantages:

Leading formulators find that Exkins, our two volatile non-reactive anti-oxidants, provide positive control of paint skinning and minimum interference with drying. Moreover, the proper Exkin has no effect on other film properties.

## Where Exkins work:

Exkins perform efficiently in any regular or odorless system. Exkin #1 differs slightly chemically from Exkin #2 and different formulae respond better to one or the other. A simple test determines which to use.

## Call your Nuodex Agent:

Our Exkin bulletin describes the test procedure for selecting the right type and concentration. It also includes test results. Ask your Nuodex agent for the Exkin bulletin and samples or write today to Nuodex Products Co., Inc., Elizabeth, N. J.

## You Can Rely on **NUODEX** for

**Delivery...** overnight from 28 warehouses and 4 separate plants

**Service...** through 34 sales agencies, 4 technical regional offices, and 3 laboratories serving all paint centers

**Research...** to maintain, improve and develop quality products

# NUODEX

*Special Purpose Chemicals  
To Serve Industry*



## Plants at

Elizabeth and Newark, N. J.,  
Long Beach, Calif.,  
Leaside (Toronto), Ontario, Canada

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**DRIERS • FUNGICIDES • MIXING & MILLING AIDS**

## CONSULT YOUR NEAREST NUODEX REPRESENTATIVE

ALLSTON, D. H. Litter Co., Inc.; ATLANTA, R. T. Hopkins; BUFFALO, Commercial Chemicals, Inc.; CHICAGO, J. W. VanTuin Co.; CINCINNATI, B. H. Roettker Company; CLEVELAND, A. C. Mueller Co.; DALLAS, Thompson-Hayward Chemical Co. of Texas; DAVENPORT, Thompson-Hayward Chemical Co.; DENVER, Thompson-Hayward Chemical Co.; DES MOINES, Thompson-Hayward Chemical Co.; DETROIT, Baker & Collinson; HOUSTON, Thompson-Hayward Chemical Co.; INDIANAPOLIS, Indiana Naval Stores Co.; KANSAS CITY, Abner Hood Chemical Company; LOS ANGELES, Nuodex Products Co., Inc.; LOUISVILLE, B. H. Boyel & Company; MEMPHIS, Thompson-Hayward Chemical Co.; MILWAUKEE, R. L. Ferguson; MINNEAPOLIS, Thompson-Hayward Chemical Co.; NASHVILLE, Post Brokerage Company; NEW ORLEANS, Thompson-Hayward Chemical Co.; NEW YORK, D. H. Litter Co., Inc.; OKLAHOMA CITY, Thompson-Hayward Chemical Co.; OMAHA, Thompson-Hayward Chemical Co.; PHILADELPHIA, Harry W. Gaffney; PITTSBURGH, John D. Butts; PORTLAND, Fred E. Alsop & Co.; RICHMOND, F. V. Gunn & Co., Inc.; ST. LOUIS, J. E. Niehaus & Co.; SAN ANTONIO, Thompson-Hayward Chemical Co.; SAN FRANCISCO, Cole & DeGraf; SEATTLE, D. B. Smith; TULSA, Thompson-Hayward Chemical Co.; WICHITA, Thompson-Hayward Chemical Co.

## NEW MATERIALS — EQUIPMENT



REICHHOLD

### PLASTICIZED PHENOLIC Water-Soluble

Known as "Hydrophen", this resin is made up of three components chemically combined to yield a homogeneous, film-forming composition. The components are 1) a phenol alcohol, synthesized from carbolic acid and formaldehyde, which confers hardness and abrasion qualities; 2) an alkyd resin which gives flexibility and prevents cracking; 3) ammonia, which reacts with the alkyd constituent to make the material completely soluble.

According to the manufacturer, this three-component resin may be thinned with ordinary tap water and applied directly to a metallic surface as a clear finish, or it may be pigmented to produce colored enamel. After application, the water is allowed to evaporate and heat is applied (see photo) or baked to yield a finished coating which is said to be water-resistant, weather proof, resistant to oils, corrosion, and solvents and flexible enough to allow deep pressing and stamping. Chief uses of this resin will be in the formulation of industrial coatings for automobiles, farm machinery, and other durable goods fabricated from metal. For complete details write to Reichhold Chemicals, Inc., 525 N. Broadway, White Plains, N. Y.

### IMPRINTER MACHINE

#### For Marking Cans

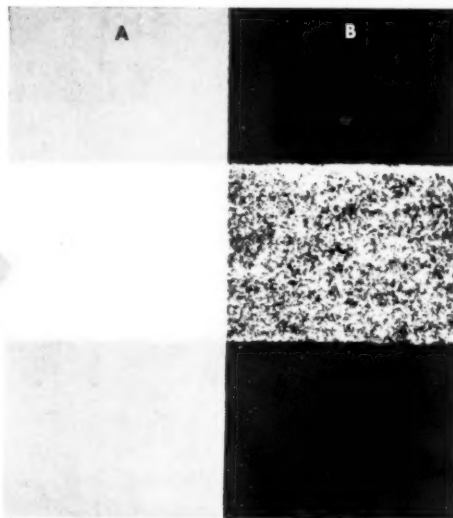
Machines are said to easily and quickly attach to domestic and foreign wrap-around labelling machines. Manufacturer reports that these imprinters will mark at the same production rate and as a part of the labelling operation with no extra labor or separate handling. These machines are used for identifying chemicals, paints, aerosol products as required by government specifications, or to code cans to identify date, batch, place of manufacture, etc. Rotary Imprinter, Inc., Hillside 5, N. J.

### ALL-PURPOSE DEODORANT

#### Varied Uses

All-purpose deodorant, sold under the tradename "Deodall" #1, is not intended for one particular odor problem, but is recommended for use in various industrial odor applications where only an inexpensive masking agent can be used. This deodorant is recommended in such applications as low-cost solvents, chemical by-products and salvagable materials which can be saleable only with the application of an inexpensive deodorant. Sindar Corp., 330 W. 42nd St., New York 36, N. Y.

**THIS  
BLOTTER TEST  
PROVES...**



## THERE'S SUPERIOR "HOLD-OUT" IN PRIMER SEALERS MADE WITH "ELVACET"

(polyvinyl acetate emulsions)

The above photograph offers striking evidence of the superior "hold-out" of "Elvacet"-based primer sealers—even on such a highly absorptive surface as a desk blotter.

One end of the blotter (A) was given a single coat of a primer sealer made with "Elvacet," while the other end (B) was left uncovered. Then a standard white enamel was brushed across the middle of both areas. Look at the results!

There's uniformly high "hold-out" on the section with the "Elvacet" primer coat as shown by the smooth, unbroken topcoat surface.

Fast drying time and excellent sealing properties are additional advantages of primer sealers made with "Elvacet." For more information on this easily formulated low-cost resin emulsion, send in the coupon below.

**Mail this coupon now**

PVP103

E. I. du Pont de Nemours & Co. (Inc.)  
Electrochemicals Department, Wilmington 98, Del.  
Please send me more information on "Elvacet" for primer sealers.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

**DU PONT  
"ELVACET"**



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

## GREETINGS CONVENTIONAIRES!



**LET'S GET TOGETHER  
AT BOOTH No. 75!**



An interesting display of  
America's finest, most ad-  
vanced Paint Process  
Equipment awaits you. . .

**...AND**

Our engineers are on hand  
to answer your questions,  
solve your problems—or  
just shake your hand and  
say. . .

**...HOWDY!**



GET TO KNOW THE FIRM WITH "KNOW HOW"

**EPWORTH MANUFACTURING CO.**

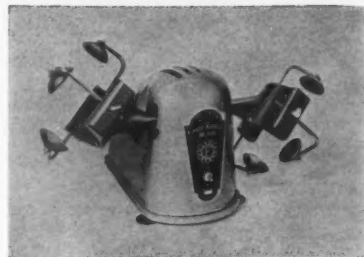
6587 Epworth • Detroit, 10 Michigan

EXCLUSIVE MANUFACTURERS OF COMPLETELY FABRICATED ALLOY  
STEEL PAINT MILLS WITH ROLLER BEARING CONSTRUCTION THRUOUT.

*Emco Mills . . . Wear Longer . . . Cost Less*



## NEW MATERIALS — EQUIPMENT



FISHER-KENDALL

### DRY MIXER

#### Yields Homogeneous Mixture

This mixer has two arms moun-  
ted to rotate 180 degrees out of  
phase with each other. Each  
arm has a cast-aluminum "hand"  
mounted at an acute angle so that  
when arms revolve, the sample is  
(1) slid and (2) thrown back and  
forth along the jar's length, and  
also (3) up and down as the jar  
revolves.

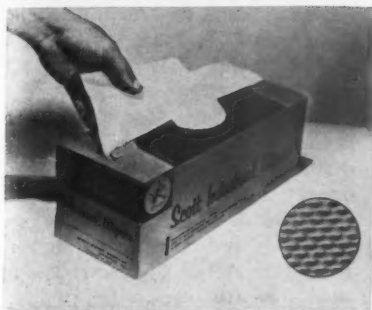
Set-screws on each of the three  
fingers on each hand keep the jar  
firmly in position; suction cups  
on each finger insure tight grip.  
Either arm-or both-arms can be  
loaded; no need to counterbal-  
ance. This mixer is also recom-  
mended for hard-to-dissolve solids  
and liquid-liquid extractions. For  
more details on the Fisher-Kendall  
Mixer, write to Fisher Scientific  
Co., 717 Forbes St., Pittsburgh 19,  
Pa.

### SPECTROGRAPH

#### Available in Two Models

1.5 meter stigmatic grating spec-  
trograph is designed to bring pre-  
cision spectrography within the  
reach of small firms. Unit is avail-  
able in two models, which pro-  
vide different dispersions, resolv-  
ing powers, and plate coverages.  
According to the manufacturer,  
both are capable of analyzing a  
wide range of non-ferrous ma-  
terials, and, in addition, are suit-  
able for use on the more complex  
spectra of unalloyed gray irons,  
plain carbon steels, and low-grade  
ores. Weighing only 150 pounds,  
the instrument is 12 inches high,  
18 inches wide, and 60 inches  
long. For complete details, con-  
tact Bausch & Lomb Optical Co.,  
635 St. Paul St., Rochester, N. Y.

## NEW MATERIALS — EQUIPMENT

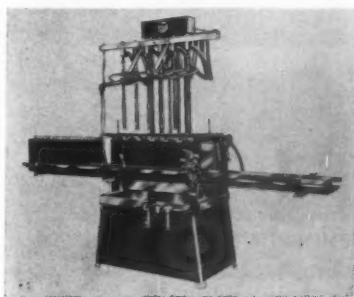


SCOTT

### INDUSTRIAL WIPER Reduces Spread of Dermatitis

Industrial wiper is said to be clean, strong, safe, and uniform and has the advantage of being highly absorbent, versatile, handy, and easily disposable.

According to the manufacturer, this wiper permits a new approach to such problems as high unit cost, expensive handling, erratic performance, shrinkage, pilferage, and laundry loss frequently in evidence when other wiping methods are used. Helps reduce accidents, gives better health protection, and reduces the spread of dermatitis. Scott Paper Co., Chester, Pa.



PACKER

### LIQUID FILLING MACHINE For Filling Foamy Liquids

Semi-automatic, gravity filler is designed for filling foamy liquids in one and five gallon containers. Known as Model SFN, this unit will fill liquid soap, waxes, and other free flowing foamy materials, without a foam or drip. Equipped with specially engineered filling nozzles, that fill from the bottom-up. Unit also features a 12-foot roller conveyor for easy handling. Packer Machinery Corp., 30 Irving Place, New York 3, N. Y.

### HYDROXYETHYL CELLULOSE Powder Form

Cellosize hydroxyethyl cellulose is a white, water-soluble, free-flowing powder and is useful as a thickener, stabilizer, dispersant, and binder. It is being offered in two viscosity types—Cellosize WPHS (viscosity of a 5 percent solution is approximately 7000 cps 20 deg. C.), and Cellosize WPHS—Low (viscosity of a 5 per cent solution is approximately 100 cps. at 20 deg. C.). Both types contain a minimum of 60 per cent hydroxyethyl cellulose and have a maximum salt content (sodium phosphates) of 35 per cent. Of particular interest to the paint industry, this particular cellulose compound has found application

as a thickener and stabilizer for resin emulsions. It is also suggested as a pigment dispersant. For complete details on the materials, contact Carbide and Carbon Chemicals Co., 30 E. 42nd St., New York 17, N. Y.

### METHYLSTYRENE For Resin Synthesis

New form of methylstyrene is said to produce plastics and resins of greater heat resistance. Being produced in experimental quantities, the manufacturer claims that polymers made from methylstyrene have shown significant properties in surface coating resins application. American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N. Y.

# CH<sub>5</sub>CH<sub>11</sub>CH<sub>6</sub>CH<sub>4</sub>OH

## PENTAPHEN

PARA-TERTIARY-AMYLPHENOL

by Sharples

✓ Pale-colored, light-stable, oil-soluble resins.

Either reactive or non-active resins can be produced by condensation with aldehydes. Pentaphen's amyl group imparts a higher degree of oil-solubility than lower alkylated phenols or cresols.

These resins are soluble in various solvents including benzene, toluene, mineral spirits and many drying oils.

Samples and additional information  
sent promptly on request.



## SHARPLES CHEMICALS INC.

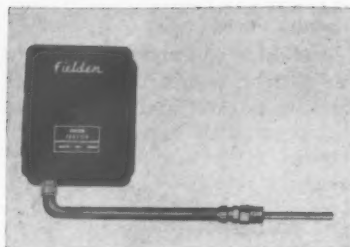
A SUBSIDIARY OF THE PENNSYLVANIA SALT MANUFACTURING COMPANY

500 Fifth Ave., New York • 80 E. Jackson Blvd., Chicago • 106 S. Main St., Akron  
Martin, Hoyt & Milne Inc., San Francisco • Los Angeles • Seattle • Portland  
Shawinigan Chemicals, Ltd. • Montreal • Toronto  
Airco Company International, New York

**NEW  
MATERIALS — EQUIPMENT**

**ALKYD VEHICLES  
Varying Oil Lengths**

Three non-phthalic alkyds, 70 percent solids are available in oil lengths of 50-25-5 gallons. The company reports that it will be possible for paint manufacturers to obtain whatever oil length paint desired by merely blending. Basic formulas, samples and complete information are available by writing to T. F. Washburn Co., 2244 Elston Ave., Chicago 14, Ill.



**FIELDEN**

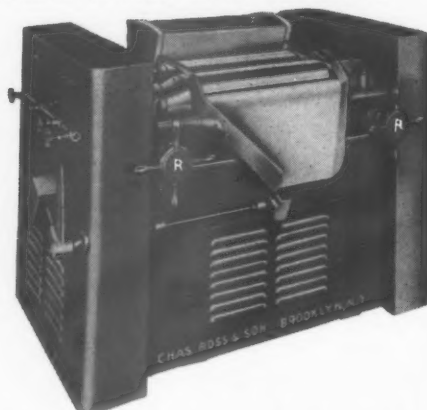
**ELECTRONIC LEVEL CONTROL  
Has No Moving Parts**

According to claims of the manufacturer, "Tektor" level control

is an improved capacitance unit with no moving parts. The circuit operates by a change in the electrical capacitance of the electrode caused by the approach of any material that flows. It is said that this instrument provides control as close as 1/16" of liquid, divided solid, interface, conducting or non-conducting, wet or dry materials. Electrodes are rods and discs which may be completely sheathed in corrosion resistant material. Electrodes are available for use with pressures up to 2000 psi, temperatures up to 1500 deg. F. Fielden Instrument Div., Robertshaw-Fulton Controls Co., 2920 N. Fourth St., Philadelphia, Pa.

**ROSS HIGH SPEED MILLS WILL CUT  
YOUR PRODUCTION COSTS**

**NEW ROSS #52T —  
THREE ROLL MILLS**  
prove time and again  
to give maximum out-  
put with highest qual-  
ity grinding or disper-  
sion results.



The ease of operation, increased production features, and rugged construction of ROSS mills are worth investigating to see why ROSS is the leading mill in plants throughout the country.

**Compare these features built into every ROSS Mill:**

1. Highest grade rolls precision ground and tested for maximum hardness. Thin wall construction with large full length cooling chambers.
2. Increased roll speeds for higher production with special differential speeds for maximum shear.
3. Newly designed hopper quickly adjusted or removed for cleaning. Dual adjusted end plate regulator optional.
4. Solid one piece cast iron frame eliminates vibration, assures rigidity and perfect roll alignment under all conditions.

5. Motor mounted inside mill frame. Two speed motors when required.

6. Extremely quiet operation with heavy SKF self-aligning roller bearings throughout and helical gears operating in continuous oil bath lubrication.

7. Balanced apron prevents scoring of rolls. Uniform pressure of thin razor knife gives clean takeoff without heating.

8. Special bearings in handwheels facilitate rapid setting or disengaging of rolls. Parallel settings obtained with indicating dials for sensitive accurate adjustment. Setting is direct, has no intermediate wearable parts, will not lose effectiveness or accuracy.

Available in 4½x10, 6x14, 9x24, 12x30, 14x32 and 16x40 inch sizes. Write for further details!

**Information on our guaranteed re-conditioning service for mills of all types on request.**

**CHARLES ROSS & SON COMPANY**

148 Classon Ave. • Brooklyn 5, N. Y.



**PENNSYLVANIA SALT**

A complete lab. has been set up by Pennsalt at its Research and Development Laboratories to provide technical service for customers using phosphate coatings line. This machine tests bonded paint surfaces under stress

**PHOSPHATING COMPOUNDS  
Complete Line**

Known as "Fosbond" this line includes a range of phosphating compounds for application of various types of iron phosphate, zinc phosphate or manganese phosphate coatings. In addition, a line of compounds for surface preparation prior to phosphating are available. The manufacturer reports that these cleaning and surface preparation compounds employ new activators which improve control of the ultimate coating desired. For complete details on these compounds, write to Pennsylvania Salt Mfg. Co., 1000 Widener Bldg. Philadelphia, Pa.

DOW

# HERE'S WHY IT'S BETTER TO FORMULATE WITH DOW LATEX

With DOW latex it's easier to make paint that sells faster, and DOW advertising stressing "year-'round" decorating helps *keep* sales high



Paint manufacturers tell us that latex paints made with Dow latex have proved profitable not only because Dow latex offers exceptional ease of formulation, but latex paints are easier to use—and consequently easier to *sell*. Dow latex gives paint formulations all of the properties that the booming do-it-yourself market demands today, such as ease of application, fast dry, durable finish, easy cleanability and absence of painty odor. Homemakers ask for latex paints because they know by experience that they have these wanted advantages.

Users of latex paints are learning to disregard traditional painting habits and to extend "paint-up season" right through the year. Mid-summer, mid-winter . . . it's all the

same to those who use latex paints that dry fast in *all* weather and leave no painty odor. That is the current theme of Dow national advertising for latex paint. It is designed to encourage readers to paint right through "closed-window weather", eliminate seasonal dips in paint sales—and change the painting habits of the nation. Watch for another Dow advertisement promoting latex paints in the September issue of *Better Homes and Gardens* magazine—and be sure your dealers are well stocked with fast-moving paints made of Dow latex. For further information, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Department, Coatings Section, PL 1393A.

*you can depend on* DOW PLASTICS

DOW

**NEW  
MATERIALS — EQUIPMENT**

**LABORATORY MIXER**

**Explosion-Proof**

Mixer is recommended for simple fluid mixing, blending, solids suspension, gas dispersion, and in connection with mass transfer and heat transfer studies. Can furnish data for determining scale-up relationships.

This unit, according to the manufacturer, mixes low-viscosity fluids in quantities up to 50 gallons, and will mix lesser volumes of high-viscosity fluids. The mixer clamps on the rim of any vessel, or may be clamped to a separate support. Adjusts to any angle, by



MIXING EQUIPMENT

means of a universal ball joint with screw-type locking clamp. Motor operates on 110-volt, 60-cycle, single phase AC and is approved by Underwriters' Laboratories for Class I, Group D, and Class II, Group E, F, and G service. Motor shaft is suspended on sealed ball bearings. To insure smooth operation, a third sealed ball bearing supports the tube holding the mixer shaft. For replacement or change of shafts, a chuck connects the shaft to the drive tube. Tube, chuck, shaft and propellers in other metals and alloys are available. Mixing Equipment Co., Inc., 135 Mt. Read Blvd., Rochester 11, N. Y.

## McCloskey's No. 10510 UNIVERSAL TINTING PASTE VEHICLE

The greatest money-saver and improvement for paint manufacturers since the discovery of titanium. Our technical staff have perfected an entirely new vehicle which is a must in every paint manufacturing plant, not only because it will save the paint manufacturer hours of labor and untold loss through waste such as skinning, hardening, etc., of tinting color, but reduces the tinting color of a manufacturer to one tinting vehicle for all types grinding mediums.

This marvelous vehicle eliminates the necessity of grinding tinting colors in different vehicles to meet the demand of each particular product. Frankly, you cannot afford to be without McCloskey's No. 10510.

*Imagine . . .*

### ONE TINTING PASTE FOR--

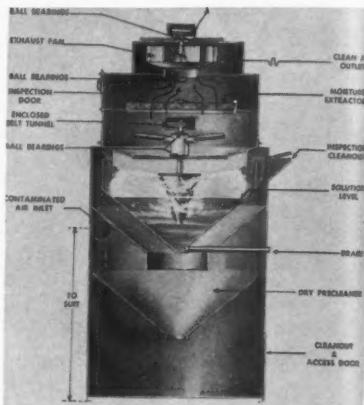
STYRENATED ALKYDS  
LONG OIL ALKYDS  
MEDIUM OIL ALKYDS  
SHORT OIL ALKYDS  
HOUSE PAINTS  
LACQUERS  
OLEORESINOUS VARNISH ENAMELS  
UREA RESINS  
CHLORINATED RUBBER  
MELAMINE RESINS

100% TINTING  
COMPATABILITY  
WITH  
ALL  
OF THESE

Order a drum or a five gallon container of this material at our risk.

**McCLOSKEY VARNISH CO.**

PHILADELPHIA • CHICAGO  
PORTLAND, ORE. • LOS ANGELES



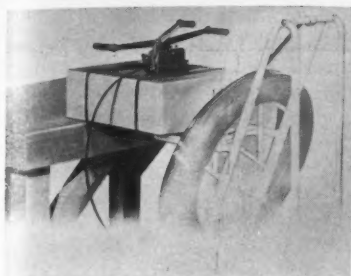
SCHMIEG

### DUST, FUME ELIMINATORS Wet and Dry Types

"Centri-Merge Vertical Rotor" eliminators are offered in two types. One is used for wet collection and elimination only, while the other is a combination primary dry and secondary wet collection unit. The latter has a built-in dry type pre-cleaner for dry collection of heavier and most fine particles, and is reported to be particularly useful where material salvage is an operational requirement.

Both units combine the cyclonic principle of dust separation and positive high pressure water action to remove impurities from the air in a rotating torrent of water. For certain applications, other liquids than water may be used, according to the manufacturer. Capacities range from 500 to 50,000 CFM. Schmiege Industries, Inc., P.O. Box 4701, Detroit 34, Mich.

## NEW MATERIALS — EQUIPMENT



INLAND

### STRAPPING METHOD

#### Seal-less

Method of strapping, known as Inland Seal-less strapping, is claimed to offer a new simplicity of application, economy, and holding power. In two operations, the strapping machine tensions the strapping, cuts it to exact length void of waste and effects a mechanical interlocking of two overlapping ends of strapping that has consistently tested between 77 percent and 86 percent of the strength of the strapping itself, according to the manufacturer.

It is said that this method eliminates seals of any kind, and saves time and cost of applying seals.

Coil holders and strapping table dispensers are also being made available to dispense strapping in easy feeding loops. Available in both floor and stand types. Dispensers will accommodate standard 100 lb. coils. Inland Wire Products Co., 3947 South Lowe Ave., Chicago 9, Ill.

### MAGNESIUM CONVEYOR

#### Portable

Portable roller conveyor system is fabricated entirely of magnesium. According to the manufacture, this unit weighs from 15 to 40 percent less than comparable equipment of similar size and capacity, thereby providing extra facility in manual handling. Designed primarily for use where portability and conveyor job-spotting is a major consideration, one man is reported to be able to set-up, dismantle or relocate the conveyor system in considerably less time than normally required. For complete details, write to Magline Inc., Pinconning, Mich.

### ALKYD VEHICLE

#### For Flat Paints

Alkyd vehicle, sold under the trade-name "Faf", has the following properties, the manufacturer reports:

This resin is a highly polymerized pure oil alkyd, with a high viscosity at low solids with excellent solubility, and low in odor. It has carefully controlled uniformity and a low acid number, producing coatings with good can stability and suspension properties. It contains a well balanced combination of solvents to insure proper set-up and lap time in paints. Recommended for interior

flats, semi-glosses and primer sealers.

Paints produced with this particular alkyd are reported to have good brushing, flowing, and leveling properties. Coatings whether pastels or deep tones show a finish which is uniform in color and sheen over porous and uneven surfaces, even in one coat application. They produce a tough, durable finish, which is highly washable and has very good adhesion and color retention. Primer sealers formulated with this resin have good, hard dry and excellent enamel hold-out. Farnow Varnish Works, 4-80 47th Road, Long Island City 1, New York.

LAST YEAR using samples from dealers' shelves, we tested the enamels of 50 different manufacturers. Stirring Tenlo-70 into a portion of each sample, we made comparative draw-downs on glass plates. In every enamel tested, Tenlo-70 sharply reduced or eliminated sagging and running, and without affecting brushability, leveling or gloss.

Retaining all these samples, we recently tested them again. After one year's shelf-life, Tenlo-70 still controls sagging and running.

Make this easy test: Today, stir 1 gram of Tenlo-70 into ¼ pint of your enamel. Tomorrow, make comparative draw-downs of the treated enamel and a control, placing upright to dry.

Prove to yourself what Tenlo-70 will do for your enamel.

## NEW MATERIALS — EQUIPMENT

### ZINC STEARATE

#### Low Gelling Action

Cyanamid Zinc Stearate 53 is suited for use as an efficient sanding aid in lacquer sanding sealers, according to the manufacturer. It is reported that material has limited solubility and low gelling action in organic solvents which is advantageous in producing fluid, easily handled mill bases. This material also imparts easy sanding characteristics required in wood finishing schedules. May be used as a flattening agent in lacquers and varnishes. For complete information on Cyanamid Zinc Stearate 53, write to American Cyanamid Co., Plastics and Resins Div., 30 Rockefeller Plaza, New York 20, N. Y.

### NON-OXIDIZING ALKYD

#### For Baking Enamels and Lacquers

Duraplex ND-79 is claimed by the manufacturer to provide good color and gloss characteristics needed for washing machine enamels, stove coatings, and durable nitrocellulose lacquers for automotive and aircraft use. Other properties include high alkali resistance, and good compatibility with nitrogen resins and nitrocellulose, according to the producer. In lacquer coatings, this resin is said to provide toughness and gloss with excellent resistance to lifting. For complete data and information on this alkyd resin, write to Rohm & Haas Co., The Resinous Products Div., Washington Sq., Philadelphia 5, Pa.

### CHROME PIGMENTS

#### Yellow Types

Three chrome yellow pigments have the following properties, according to the manufacturer:

CP Chrome Yellow Light Lemon 12158 is a lemon yellow in the extra light range with the ultimate in light resistance for lemon yellows. It is expected to find wide acceptance in combination with blue pigments to make clean greens of good light resistance. Since 12158 is considerably lighter than standard lemon yellow, the resultant green produced is some-

what cleaner than when standard lemon yellow is used.

CP Chrome Yellow Medium 12152 is characterized by good light resistance, high strength, clean shade, high hiding power, low oil absorption and freedom from bleed in all types of vehicles. Due to its all-around good properties, 12152 is suitable for a wide variety of applications in all industries which consume color pigments, with the exception of those requiring lead-free formulations.

CP Chrome Yellow Medium 12157 is a medium yellow containing 98.0% minimum lead chromate content and especially de-

signed for use in Federal Specification TT-E-4856, "Enamels: (for) Drums and Other Metal Products, Rust Inhibiting". Since TT-E-4856 specifies the minimum content of lead chromate as well as lead and chromium as determined by chemical analysis of the finished enamel, a definite savings in pigment cost can be made by using 12157.

Bulletins describing these colors in detail as well as samples can be obtained by writing the PC&C Division, The Sherwin-Williams Co., 300 West Lake St., Chicago 6, Ill., or 100 Park Ave., New York 17, N. Y.

### SOLVENTS

acetone  
n-butyl acetate  
ethyl acetate  
2-ethylbutyl alcohol  
2-ethylhexyl alcohol  
isobutyl acetate  
isobutyl alcohol  
isopropyl acetate

### PLASTICIZERS

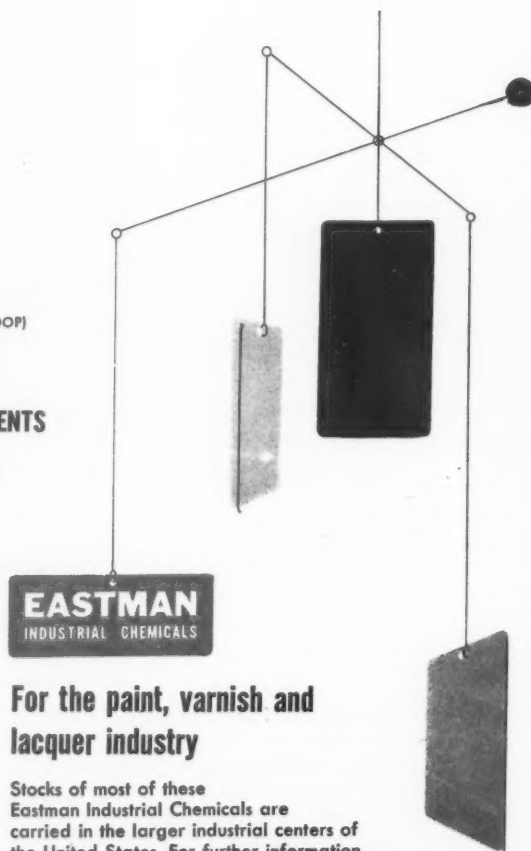
dibutyl phthalate  
diethyl phthalate  
di-(2-ethylbutyl) phthalate  
di-(2-ethylhexyl) phthalate (DOP)  
di-(methoxyethyl) phthalate  
dimethyl phthalate  
di-2-ethylhexyl adipate  
di-isobutyl phthalate

### ANTI-SKINNING AGENTS

Tecquinal  
mono-tert-butyl hydroquinone  
Tenamene 20

### FILM FORMERS

cellulose acetate  
cellulose acetate butyrate



### For the paint, varnish and lacquer industry

Stocks of most of these  
Eastman Industrial Chemicals are  
carried in the larger industrial centers of  
the United States. For further information,  
write or call our nearest sales office.

# Eastman

CHEMICAL PRODUCTS, INC.  
KINGSPORT, TENNESSEE

Sales representative for TENNESSEE EASTMAN COMPANY, division of EASTMAN KODAK COMPANY

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York—260 Madison Ave.; Framingham, Mass.—85 Concord St.; Cleveland—Terminal Tower Bldg.; Chicago—360 N. Michigan Ave.; St. Louis—Continental Bldg.; Houston—412 Main St.; West Coast: Wilson Meyer Co., San Francisco—333 Montgomery St.; Los Angeles—4800 District Blvd.; Portland—520 S. W. Sixth Ave.; Seattle—821 Second Ave.

NEW  
MATERIALS — EQUIPMENT



DYER

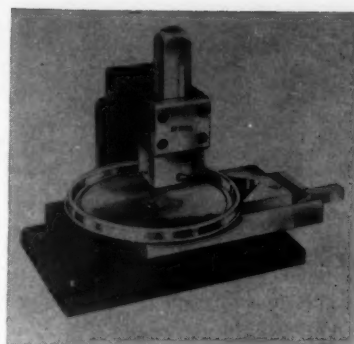
**TUBE SQUEEZER**

**Eliminates Waste**

"Usital" is a metal squeezer

which is built into the base clip of a collapsible tube and the company reports that this unit not only eliminates waste but does away with leaky, messy tube.

This tube squeezer is a metal clip with a sliding key. To use it you merely pull out the key and turn. According to the firm, there are 2 ways this unit may be incorporated in the manufacture of tubed products: (1) it may slipped over the already crimped base clip of the tube, (2) or it can be installed and crimped when the tube is filled and sealed by a simple crimping machine at the rate of 3,000 to 12,000 per hour. Dyer Products Co., 514 Second St., Canton, Ohio.



CUNNINGHAM

**EMBOSSING FIXTURE**

**Codes Can Lids**

Designated SF-100-AE Embossing Fixture, this unit was developed for embossing size and content coding on paint can lids, and for similar applications, according to the manufacturer.

This unit consists of a stamping fixture frame; a stamping fixture with movable type; a plastic matrix; and a special gauge which centers the marking, thereby making the unit adaptable for embossing all sizes of can lids up to one gallon. Only male type of characters are needed. A special plastic matrix is provided to serve as a female die. It is claimed that this matrix can be used over and over, and it does not have to be changed as the stamping characters are changed. M. E. Cunningham Co., 1025 Chateau St., Pittsburgh 33, Pa.

**VINYL ACETATE COPOLYMER**

**Internally Plasticized**

"Internally plasticized" vinyl acetate copolymer is said to eliminate problems inherent in the compounding of polyvinyl acetate with chemical plasticizers. Known as "Darex Everflex", this copolymer may replace polyvinyl acetate in regular formulations for adhesives and coatings since its permanent plasticity eliminates the need for additional plasticizers, according to the manufacturer. This particular copolymer does not lose its flexibility through aging, migration or the volatility of conventional plasticizers, claims the manufacturer. Dewey & Almy Chemical Co., Cambridge 40, Mass.

**announcing**

**a change in name**

FROM

THE NEVILLE COMPANY

TO

**NEVILLE CHEMICAL COMPANY**

To more aptly relate our corporate name to the ever-growing field which we have served through the years, and to more readily identify the scope of our products and service, we have changed our name.

Needless to say, only the name has been changed, and we hope the new name will come to symbolize the same high standard of quality that has characterized the old throughout the industry.

**NEVILLE**

PRODUCTS OF TOMORROW  
FROM THE CHEMICALS OF TODAY

**NEVILLE CHEMICAL CO.**

PITTSBURGH 25, PA.  
Plants at Neville Island, Pa., and Anaheim, Cal.

## Personnel

## Changes

### DIAMOND ALKALI

**W. H. McConnell**, director of sales, has been elected vice president. He joined Diamond Alkali as a clerk in the sales department in 1928.

**C. E. Lyon**, works manager of Diamond's electrochemical plant at Houston, Tex., has also been elected a vice president. He worked for Diamond between 1931-1935, as a chlorine sales and service representative, returning in 1941 as head of the chlorine department.

### EAGLE-PICHER

**Maurice O. Barr** has been promoted to sales manager of the Associated Lead & Zinc Company, Seattle, Washington, owned and operated by the Eagle-Picher Company, Cincinnati, Ohio, and Northwest Lead Company, Seattle. Mr. Barr joined Eagle Picher as technical representative of their Pigment Division in 1940. Most recently he was assistant sales manager of Associated Lead.

### AMERICAN CYANAMID

**Clem W. Kohlman** has been appointed advertising manager of the Industrial Chemical Division. He formerly directed advertising and sales promotion for the Textile Resin Department.

**A. M. Asherman** will be Assistant Advertising Manager of the Industrial Chemical Division.



B. W. Maxey



G. S. Warner

### GLIDDEN

**B. W. Maxey**, controller and a member of the board of directors since 1950, has been elected vice president in charge of finance and accounting. Mr. Maxey, who was named controller of the firm in 1947, joined Glidden in 1941, as an auditor. He was appointed chief accountant in 1942.

**George S. Warner** has been named controller. He joined the firm in 1946 as a member of the tax department and served as an assistant to the controller since 1948. Mr. Warner was named assistant controller at Glidden in 1952.

### SAPOLIN

**J. L. Plowright**, vice president, Sapolin Paints, Inc., New York, N. Y.,



J. L. Plowright

makers of household paint products, has been appointed a director of the firm, it was announced recently by E. A. Eckart, Sapolin president. As associated with the company for more than 25 years, Mr. Plowright will continue to direct company sales and merchandising.

### BINNEY & SMITH

**Lloyd D. Treleven** has been added to the Technical Service Department staff. With the exception of two years service in the U. S. Army, he has been with the Goodyear Tire & Rubber Co. since graduating from Ohio State University in 1946. He was chief chemist at Goodyear's Topeka Kansas, plant before leaving the firm. In his



L. D. Treleven

new position he will be located in Binney & Smith's New York office.

**Alden Davis** has been added to the firm's Akron, Ohio, staff. He was formerly associated with the Dunlap Tire & Rubber Co. of Buffalo, as a research chemist.

**No. 10**

**No. 20**

**Linseed Grinding Oils**

Finest quality PROCESSED linseed oils for the grinding of paints.

Both of these oils have 4-6 acid value and G-H viscosity. No. 10's Gardner color is 8 maximum, No. 20's is 11 maximum.

For application experience data ask the Spencer Kellogg Technical Service Department.

**SPENCER KELLOGG AND SONS, INC.**

BUFFALO 5, N. Y.

*The First Name in Vegetable Oils*

*Have You Tried?*

**The Preblend Method Using  
"Sotex Dispersing Agents"**

- **SOTEX DISPERSING AGENTS** will increase production by shortening the milling cycle.
- **LARGER QUANTITIES** of pigment can be ground in vehicles without an increase in yield value.
- **SOTEX NON-IONIC AGENTS** are co-solvents insuring stability of final product.
- **PRODUCTION PER MILL** can be doubled by the use of SOTEX AGENTS and this new technique.
- **A TEST RUN** by this method in your plant will be most convincing

*Our Technical Staff is Available  
For Demonstrations.*

**FOR TECHNICAL DATA AND SAMPLES  
WRITE, WIRE OR PHONE**

**SYNTHETIC CHEMICALS, INC.**

**335 McLean Boulevard  
Paterson 4, N. J.**

**Phone  
Mulberry 4-1726-7**

**Cable Address  
Patchem Paterson**

## NAFTONE

**Andrew P. Fleming**, for many years sales manager of the Pigment Division of Reynolds Metals Company, has joined Naftone's sales staff. He will make his headquarters in Louisville, Ky. and will work with many of the firm's agents throughout the South and Middle West. Mr. Fleming has been associated with the

paint and plastics industries for nearly 28 years. In addition to Reynolds Metals, he has been with du Pont and the Sherwin-Williams Company.



A. P.  
Fleming

## SPENCER KELLOGG

**John F. Reid** has been appointed sales representative of the firm's Buffalo District, and will handle its line of vegetable oils. He joined the firm in 1944 as advertising consultant. Mr. Reid was most recently trade sales representative at the Buffalo office.

**Robert C. Andler** has been named trade sales representative. He joined the firm in 1950 in the Oil Sales Record Department. Most recently he served in the Edible Oils Department.

## ATLAS POWDER

**George Loft** has been named public relations manager. He joined the firm after serving as associate public relations secretary of the American Friends Service Committee, an international Quaker philanthropic agency

## GELVATEX CORP.

**Forest A. Benson** has been appointed vice president of the Gelvatex Coating Corporation, Los Angeles, Calif., a subsidiary of Shawinigan Products Corporation, New York, N. Y. The appointment was confirmed at a recent meeting of the Board of Directors in Canada. Mr. Benson, who has been with the firm since its

inception, was formerly general sales manager and will continue in that capacity in addition to his new duties as an officer of the company.



F. A.  
Benson

## SULLIVAN VARNISH

**James H. Hamilton** has been appointed sales manager. He will also direct sales of the Sullivan Chemicals Division.

## FINISHED-MASON

**Clyde R. Anderson** has been named director of personnel and industrial relations. He has had more than 13 years experience in personnel work. Mr. Anderson is active in the Industrial Relations Association and a director of the Northwest Detroit Executives Club.

## 3-M

**Roy J. Gavin** has been elected a vice president of the Irvington Varnish & Insulator Division of Minnesota Mining. He will move his headquarters from St. Paul, Minn. to the Division's home offices at Irvington, N. J. Mr. Gavin joined 3-M's sales force in 1944.

## CLAY PRODUCERS

**James A. Green** has been appointed a director of the U. S. Clay Producers Traffic Association, with offices at 230 Park Ave., New York 17, N. Y. He has been associated with the Transportation industry for over 25 years.

## KOPPERS CHEMICAL

**M. Dean Fullerton** has been appointed New England District sales manager for the Chemical Division. He replaces J. W. LaBelle, who resigned. Mr. Fullerton was formerly supervisor of the Division Sales Office. He joined Koppers in 1942 as a cadet engineer.

## COMMERCIAL SOLVENTS

**James A. Atterbury**, a graduate chemist, has joined the sales staff of the Industrial Chemicals Department. He will be located on the West Coast with headquarters in the firm's San Francisco office.

# SYLOID® 162

*Davison's NEW Alkyd-Urea Flatting Agent,  
for Synthetic Finishes, gives you*

## MORE FLATTING POWER AT LOWER COST

Laboratory tests and actual use tests  
have proven that **SYLOID 162**:

- can be ground in one-quarter the time required by other varnish flatting agents.
- the flatting power is two to three times greater than existing materials.
- twice as much can be ground in a single mill charge.
- the high and low tones are not destroyed as with present varnish flatting agents.
- films are tough, durable and mar resistant.
- has an exceptionally high chemical purity.
- chemical properties are controlled to insure uniform performance.
- there is no "seeding".

For further information on SYLOID 162—the alkyd-urea varnish flatting agent that gives you better performance at lower cost—write

Progress Through Chemistry

## THE DAVISON CHEMICAL CORPORATION

Baltimore 3, Maryland

Producers of: Catalysts, Inorganic Acids, Superphosphates, Phosphate Rock, Silica Gels and Silicofluorides. Sole Producers of DAVCO® Granulated Fertilizers



R. C. Gralow



C. J. McDowell

#### CORN PRODUCTS

R. C. Gralow has been appointed director of products development. He joined the firm in 1934. Most recently he was sales manager of the Chemical Division.

C. J. McDowell, succeeds Mr. Gralow as Chemical Division Sales Manager. He was formerly senior fellow of the Corn Products Fellowship, Mellon Institute.

#### EMERY

R. W. Van Tuyle has been elected a director, and vice president in charge of manufacturing, a newly established post. He has been associated with Emery for 19 years.



R. W. Van Tuyle

During most of that period he was research director. In 1949, he became chemical director, in charge of all research, control, chemical engineering and experimental development activities. Mr. Van Tuyle will, in addition to his other duties, be responsible for supervising all chemical manufacturing operations.

#### CONSOLIDATED CHEMICAL

Leland D. Smith has been named director of transportation. He was formerly Southern Division traffic manager and has been associated with the firm since 1934. Mr. Smith will make his headquarters in Houston. As vice president and founder member of the American Society of Traffic and Transportation, Mr. Smith is also



L. D. Smith

active in the National Industrial Traffic League, where he is a member of the Executive Committee, Association of Traffic Clubs of America, and the Association of the Interstate Commerce Commission Practitioners.

#### CALCO

Alden R. Loosli has been named manager of the newly formed Market Research and Development Department. He will also continue in his present post of assistant to the general manager. Mr. Loosli came to Calco in 1937 as a student trainee and has held supervisory positions in various production departments. Among the organization he is a member of, are the American Institute of Chemical Engineers and the American Chemical Society.

#### INNES CORP.

Joseph A. McNulty has joined the sales staff. He will work with the Natural Resins Division, but will also handle other items used by the paint industry.

#### G-E

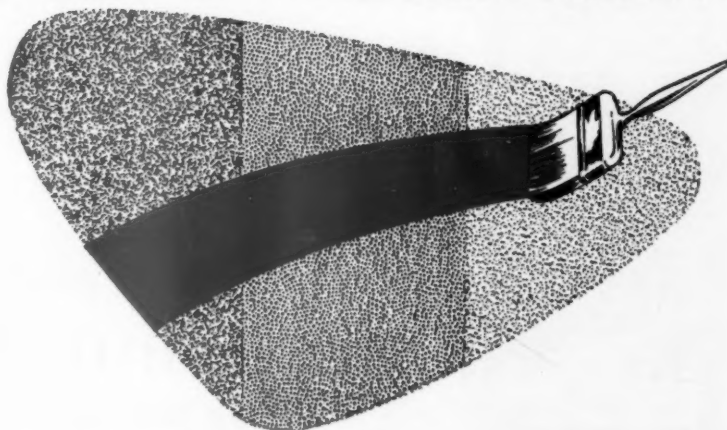
Paul F. Gavaghan has been named supervisor of the firm's Chemical Division news bureau. He will replace Robert L. Clark, who will assume an employee relations assignment with the Chemical Division. Prior to joining G-E in 1951, Mr. Gavaghan was associated with the Greensboro, N. C. News Redord as a staff writer.

#### G. P. & F.

A. Neil Savee has been promoted sales manager of the firm's Steel Package Division. He joined Geuder, Paeschke & Frey Company in 1936 as a salesman. He was successively named to more important positions, most recently being assistant sales manager of the Steel package Division.

**Performance proves...**

**TI-PURE® + selected extenders**  
**ASSURE EXCELLENT COLOR UNIFORMITY**  
**FOR FLAT PAINTS...**



**over surfaces of varying porosity!**

Your Du Pont White Pigments Salesman will be glad to give you complete information and technical assistance. Just call our nearest office or write to: Pigments Department, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Del.

® Reg. Trade-Mark for Du Pont Titanium Dioxide Pigments

**DU PONT**  
**WHITE PIGMENTS**



**BETTER THINGS FOR BETTER LIVING**  
**... THROUGH CHEMISTRY**

## GOODYEAR

**Dan Lewis, Jr.**, special field representative for the company's Chemical Division, has been transferred from his Dallas, Tex., office to Houston. Prior to joining Goodyear last year, Mr. Lewis was a development and control chemist for Shell Chemical Corp., and California Research Corp. He had been assigned to Goodyear's San Francisco and Chicago offices before being moved to Dallas earlier this year.



Dan  
Lewis, Jr.

## SHARPLES

**Fred W. Stakelbeck** has been appointed executive vice president. He joined the firm in 1934, and served in Sharples sales offices in Chicago, Dallas, and Cleveland, prior to being made works manager in 1943. In addition to his new duties, he will continue as vice president in charge of production.

### PUBLICKER

**Edward Dougherty** has been appointed Philadelphia District Sales Manager for the Chemical and Solvent Division. The Philadelphia office includes parts of Pennsylvania, New Jersey, Delaware, Maryland and Virginia. Mr. Dougherty joined the firm in 1949.

## CONTINENTAL CAN

**Willard J. Flint** has been named Continental Can Company's products sales manager for steel containers, according to W. K. Neuman, general manager of sales. Mr. Flint was formerly associated with the Geuder, Paeschke and Frey Company, Milwaukee, where he was general sales manager of the Steel Shipping Container Division. He has been active in the steel shipping container field for more than 17 years.



W. J.  
Flint

## TROYKYD products

### TROYKYD ANTI-MILDEW—

Best and most concentrated mildewcide; 39% phenyl mercury naphthenate—10% mercury.

### TROYKYD ANTI-MILDEW SPECIAL—

For government specifications MILP 906A, USA 3-186, USA 3-202, etc.; 28% phenyl mercury oleate—10% mercury.

### TROYKYD BODYING AGENT 21 BA—

The universal bodying and puffing agent that will have minimum effect on other properties.

### TROYKYD BODYING AGENT GT—

Designed specifically for paints based on Titanium calcium pigments. Eases brushing, improves viscosity, lowers cost, etc.

### TROYKYD ANTI-FLOAT—

Acts on BOTH surface tension and colloidal dispersion to give maximum and more permanent anti-floating and anti-silking properties.

### TROYKYD ANTI-SETTLE—

Not a soap. More effective as a non-settling agent—and will not effect your film properties.

### TROYKYD ANTI-SAG—

Will stop sagging WITHOUT affecting other properties. Enables formulation of lowest cost paints.

### TROYKYD ANTI-SKIN—

Will stop skinning without affecting dry time. Very mild odor.

### TROYKYD ANTI-SKIN SPECIAL—

May be added to hot varnishes without loss of agent.

DR. TROY  
ADVISES  
HELEN  
OF TROY



**Rx FLOATING IS NICE  
in the swimming pool**



**... but NOT in a paint!**

## TROYKYD ANTI-FLOAT

does the job of two types:

1. It works on the surface tension only in a more permanent and safer manner.
2. It acts to disperse the pigment colloiddally and thus prevent separation of one color from another.

Send to Dept. PV-10 for a sample. We will include a surprise free gift.

# TROY

CHEMICAL COMPANY

2589 Frisby Avenue • New York 61, N. Y.

## SHARPLES CORP.

**Robert A. Armstrong** has been appointed Philadelphia District Manager for the Sharples Corporation. He succeeds Mr. J. E. Paul, who died suddenly September 1. Mr. Armstrong joined Sharples in 1946 and was assigned to the San Francisco office. In 1950 he was transferred to the Philadelphia office as assistant to Mr. Paul.



R. A.  
Armstrong

Mr. Armstrong holds a B.S. degree in chemical engineering from Tufts College.

## WAGENMAN PAINT

**John Scott** has joined the firm's Stores Department staff. Previous to joining the Wagenman Paint Company, he was associated with the Davis Paint Company of Kansas City, as North Eastern Sales Manager.

## WITCO

**Lester J. Koch**, vice president and eastern sales manager, has resigned from the firm. He will announce his future plans at an early date. Mr. Koch joined Witco 15 years ago in the Order Department. He was elected vice president in 1950 and handled national account sales as well as being eastern sales manager.

## PABCO PRODUCTS

**J. F. Harvard** has joined the firm as general manager of manufacturing and has been elected a vice president. He will be located at the company's headquarter office at 475 Brannan St., San Francisco. Mr. Harvard was formerly associated with the Potash Company of America.



*Adaptable...*

... that's the paint maker's word for

Take the paint maker's word for it — you just can't miss with adaptable "Dutch Boy" Basic Silicate White Lead "45X" in your exterior paint formulations.

It's new "lead" magic.

In white House Paints, for example, "Dutch Boy" Basic Silicate White Lead "45X" improves self-cleaning properties: permits rain to wet the surface uniformly and remove dirt by washing off the inert chalk.

In tinted House Paints, it contributes to film durability, thus making for greater resistance to fading. Furthermore, its hydrophilic properties promote dirt removal, thus helping to keep colors fresh and clean.

In Primers, adaptable "45X" provides the lead soaps that increase adhesion. "45X" also gives

*More economical, too!*

In adaptable "Dutch Boy" Basic Silicate White Lead "45X," the reactive portion of each pigment particle is concentrated at the surface. This makes available proportionately larger amounts of "lead." So you use fewer pounds than with other white lead types.

**Dutch Boy<sup>\*</sup>**  
**Basic Silicate**  
**White Lead**  
**"45X"**



the paint film the water resistance needed to maintain its adhesive bond and helps prevent peeling.

In Porch and Floor Enamels, "45X" plasticizes the film, increasing abrasion resistance. Lead soaps formed contribute to the film's flexibility and water resistance, increasing adhesion.

It's a proved paint improver, "Dutch Boy" Basic Silicate White Lead "45X." Put it to work improving your exterior paints!



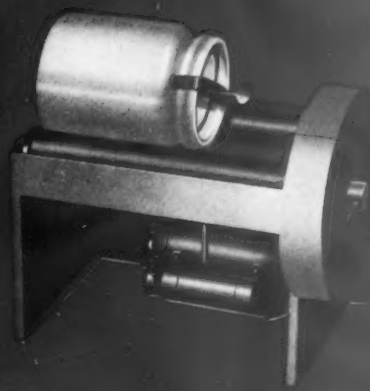
\*Reg. U.S.  
Pat. Off.

**National Lead Company:** New York 6; Atlanta; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; Dallas 2; Philadelphia 25; Pittsburgh 12; St. Louis 1; San Francisco 10; Boston 6 (National Lead Co. of Mass.).

**FAST...EFFICIENT...COMPACT...STURDY**

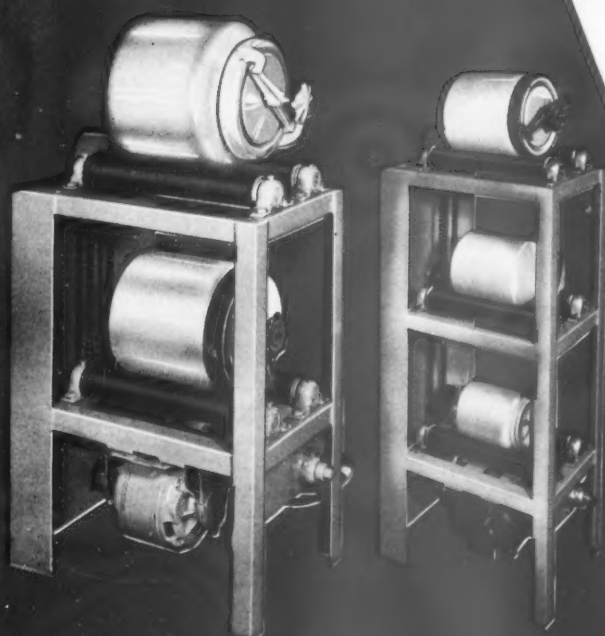
# "U. S." GRINDING EQUIPMENT

**FOR THE LABORATORY—FOR SPECIALIZED PRODUCTION**



**JAR MILLS:** A "unitized" line of jar mills tiered to save space. Exclusive roller design keeps jars centered. Sturdy all-steel frame. Heavy duty drive with variable speed control optional. Available in models to take 1-12 jars.

**MILL JARS:** Made of strong, solid, "high-fired" porcelain with fast, positive, "all-in-one" locking device. Wide mouth for easy loading and unloading. Long wearing and non-contaminating. Gasket supplied in rubber, cork, or plastic. Six sizes — one to six gallon capacity.



**BALL MILLS:** Barrel of heavy-walled, one-piece, "high-fired" porcelain. Resistant to thermal and mechanical shock — built for long wear. Frame of rugged, welded, all-steel construction. Drive is extra-powerful with heavy chain for long life. Available in 10, 25, and 50 gallon capacities.

**BURUNDUM:** White, cylindrical medium that gives faster, finer grinds. Extra-hard, extra-heavy, extra-tough. Unique shape gives more grinding area per contact; high specific gravity gives more contacts per minute; greater hardness gives longer wear—minimum contamination.

430



## U. S. STONEWARE

PROCESS EQUIPMENT DIVISION

• AKRON 9, OHIO

SEE THEM AT  
THE SHOW—  
BOOTH  
No. 1

If you are in the protective coatings industry, here's good news for you!

# **now-** **conjugated** **SAFFLOWER** → **22** **% diene conjugation**

a new,  
important  
drying oil!

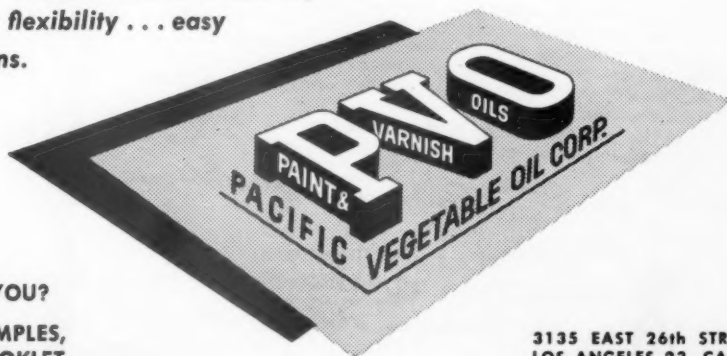
The Pacific Vegetable Oil Corporation announces the development of a new drying oil — Safflower 22 — which offers many remarkable properties. Here are a few:

**HIGH SPEED OF DRYING** — dries to a gloss film approximately twice as fast as unbodied linseed oil.

**FAST POLYMERIZATION** — polymerization speed approximately twice that of catalyzed linseed oil.

**EXCELLENT COLOR RETENTION AND NON-YELLOWING PROPERTIES** — contains little or no linolenic glycerides.

*Alcoholizes easily . . . requires far less cooking time . . . gives better flexibility . . . easy to use in formulations.*



HOW WILL THIS  
NEW OIL WORK FOR YOU?

WRITE TODAY FOR SAMPLES,  
DETAILS, AND FREE BOOKLET.

3135 EAST 26th STREET  
LOS ANGELES 23, CALIF.  
62 TOWNSEND STREET  
SAN FRANCISCO 7, CALIF.

## HANLINE BROS.

**W. F. Holland** has been named technical director. He was formerly technical director of Sears, Roebuck & Company's Philadelphia plant, Benjamin Franklin Paint & Varnish Company. Previously, Mr. Holland had been assistant director of laboratories of Standard Varnish Works, Staten Island, N. Y.

## DEWEY AND ALMY

**Thomas C. Tarbox** has been named head of the sales force in the Mid-Atlantic states area. He will make his headquarters in New York City and will handle sales of all Darex organic chemicals to customers in the paint and chemical fields, among others. His appointment follows that of John Broughton, recently promoted to handle sales in the Chicago Midwest territory.

## BAKELITE

**Dr. James F. Eversole** has been appointed vice-president in charge of research. He joined Union Carbide and Carbon Corporation, parent firm of Bakelite, in 1929 as a research chemist. Most recently he was manager of research administration of Union Carbide.

## NATIONAL LEAD

**Philip C. Muccilli** has been named production manager, succeeding E. R. Rowley, who has been appointed president of Titanium Metals Corporation of America, subsidiary of National Lead and Allegheny Ludlum Steel Corporation. Mr. Muccilli started with National Lead in 1920 as a draughtsman in the Atlantic Branch. His most recent position was as assistant production manager.

## DEVOE & RAYNOLDS

**J. T. Lester** has been appointed southwest district manager, with headquarters in Dallas. He succeeds C. H. Asel who resigned because of ill health. Mr. Lester joined Devoe in 1939. The position of manager of the Devoe unit at Miami, previously held by Mr. Lester is to be taken over by **J. Leo Loyd**, formerly salesman in the Miami, Florida area.



J. T.  
Lester

## PATTERSON FOUNDRY

**W. V. C. Jackson** has been named manager of the Patterson Foundry & Machine Company's newly opened district sales office in Tulsa. Mr. Jackson has represented chemical processing manufacturers in the Tulsa area for 26 years. The sales office will provide service to the petroleum, chemical and allied industries in Oklahoma, Texas Panhandle and South-eastern Kansas.



W. V. C.  
Jackson

## HEYDEN CHEMICAL

**Kenneth Irely** has been appointed chemical production manager. He had been assistant manager of Heyden's Garfield, N.J., plant since 1952. Mr. Irely joined the company as production manager at the Garfield plant in 1949. He has also been associated with the Monsanto Chemical Company, Resinox Corporation and the Commercial Solvents Corporation.

## DU PONT

**Walter F. H. Mattlage** has been named assistant general manager of the firm's Fabrics and Finishes Department. Mr. Mattlage, who had been manager of the Fabrics Division, succeeds **Dr. David H. Dawson**, who has been named assistant general manager in charge of manufacturing in the Textile Fibers Department. Mr. Mattlage joined Du Pont in 1928 as a mechanical engineer. Dr. Dawson joined the firm in 1933 as a chemist in the Baltimore, Md., plant of the Pigments Department.

**Max N. Nickowitz** has been named manager of the Fabrics Division, succeeding Mr. Mattlage. He joined Du Pont in 1919 as a chemist in the Newburgh laboratory.

# Chats about Finishes

## NEW LABORATORY STUDYING IMPROVED ALKYD FORMULATIONS

by  
**RAYMOND P. SILVER**  
Research Division  
Hercules' Synthetics Department



While we do not manufacture finishes or claim to be specialists on the subject, we have been doing considerable work on alkyd vehicles in our Product Application Laboratory. This includes preparation of alkyd finishes in semiplant batches, to secure production and performance data that may interest you on a commercial basis.

For example, we have taken our B56, an alkyd intermediate, which permits processing of modified alkyd vehicles even in open kettle equipment, and prepared flat, semigloss and gloss enamels. Results show that these enamels have excellent properties and yet cut costs sharply.

Two other materials are being studied: Pentaerythritol and Abitol®. The latter, a high molecular weight primary alcohol, controls molecular size in alkyds. In cooking, it widens the operating margin between points of highest possible viscosity and gelation. Hercules' grade of P.E. assures uniform alkyd resins because this polyol is always chemically uniform itself. Impurities that cause filtering troubles aren't present.

Write me, and I'll be glad to send complete details and testing samples on any or all of these products.

*Raymond P. Silver*

Synthetics Department  
**HERCULES POWDER COMPANY**

INCORPORATED  
926 Market Street, Wilmington 99, Del.



1C53-6

# PATENTS

Conducted by

Lancaster, Allwine &  
Rommel

## PATENTS AND COPYRIGHTS

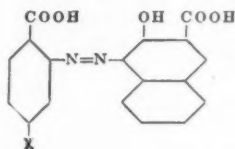
424 Bowen Building,  
Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel.

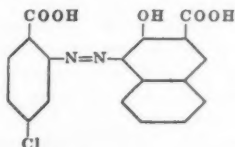
### AZO Pigment

U. S. Patent 2,649,383. Donald B. Killian, Nutley, N. J., and Albert D. Reidinger, Wilmington, Del., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware.

As a new insoluble azo maroon pigment, the manganese salt of the azo dyestuff having the formula in which X is a substituent selected from the group consisting of halogen and nitro.



A durable synthetic alkyd resin coating composition containing as pigments ingredients a minor proportion of powdered aluminum and a major proportion of the manganese salt of the insoluble azo maroon dyestuff having the formula:



### Sulfonated Aryl Acetylene Resins

U. S. Patent 2,644,801. Gaetano F. D'Alelio, Pittsburgh, Pa., assignor to Koppers Company, Inc., a corporation of Delaware.

A water-insoluble resin containing a plurality of sulfonic acid groups, said groups being attached to an insoluble, infusible resin prepared by the polymerization of a polymerizable mass comprising a polymerizable aryl acetylene hydrocarbon compound.

### Vinyl Polysiloxane

U. S. Patent 2,645,628. Dallas T. Hurd, Burnt Hills, N. Y., assignor to General Electric Company, a corporation of New York.

A resinous composition of matter comprising a polymerizable monovalent hydrocarbon-substituted polysiloxane wherein the hydrocarbon radicals consist of both (a) vinyl radicals, and (b) monovalent radicals selected from the class consisting of alkyl and aryl radicals, all the aforementioned hydrocarbon radicals being present in the ratio of from 1.2 to 1.8 total hydrocarbon radicals per silicon atom and are directly attached to the polysiloxane silicon atoms by carbon-silicon linkages, the said vinyl radicals comprising from 1 to 20 per cent of the total number of silicon-bonded hydrocarbon radicals.

### Promoting Polymerization

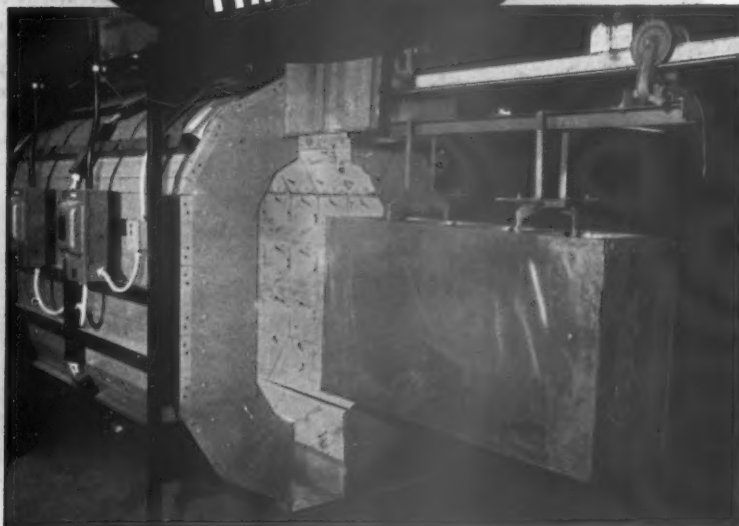
U. S. Patent 2,647,878. Max M. Lee, Washington, D. C.

In method of polymerizing a composition comprising a liquid monomeric unsaturated compound in which the unsaturation is due to a single terminal ethylenic group which is attached to a negative radical and which unsaturated compound is polymerizable in the presence of a peroxy polymerization catalyst, said catalyst also being present, that improvement which consists in the step of adding a small but effective amount of a compound selected from the group consisting of 1,2,3,4-tetrahydroquinoline and the N-alkyl, N-hydroxyethyl, N-cyanoethyl, and 2,7-dimethyl substitution derivatives of 1,2,3,4-tetrahydroquinoline to promote gelation of the composition.

# FOSTORIA

*America's Finest  
Engineered Ovens*

SAVE SPACE •  
TIME • COSTS



## A TYPICAL EXAMPLE OF ADVANTAGES TO THOUSANDS OF PLANTS

With a 14' 8" Fostoria oven, Anderson-Hickey Co., Nashville, Tenn., now bakes the finish on metal filing cabinets in 5½ minutes compared to 30 minutes previously required with another oven. Interior cabinet fittings, which were formerly baked separately, are now baked inside the cabinet. Improved quality of finish with uniform hardness and glass is now obtained.

Throughout industry, new high standards of efficiency are being set by utilization of modern Fostoria oven equipment. A Fostoria representative will gladly analyze your production needs and submit recommendations for your consideration.

● Visit our display of Paint Heating and Infra-red Systems at the PAINT INDUSTRY SHOW, Atlantic City, BOOTH NO. 85-86

INFRARED  
**fostoria**  
OVENS

Thoroughly proved production results in over 7,000 installations are the factual evidence that rates Fostoria the "Most Efficient of All Industrial Ovens". No other oven approaches Fostoria results in the high percentage of energy usefully utilized. No other oven compares with Fostoria in production per square foot of floor space. No other oven can match the quality of output or the low "per piece" cost of the high efficiency Fostoria oven. Give your plant the benefit of this modern, cost-cutting, quality improvement, space-saving equipment. Write now for complete facts.

THE FOSTORIA PRESSED STEEL CORP.  
FOSTORIA, OHIO, Dept. F

Please send me information on Infra-red Ovens

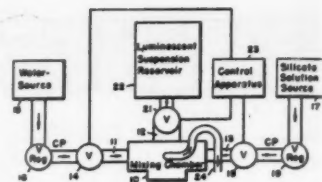
for .....

Name .....

Company .....

Street .....

City ..... State .....



U.S. PATENT 2,650,199

## Mixing Luminescent Coatings

U. S. Patent 2,650,199. Jerome J. O'Callaghan, Skokie, Ill., assignor to The Rauland Corporation, a corporation, of Illinois.

The process of mixing within and discharging from a common mixing chamber a luminescent coating composition including, as ingredients, predetermined quantities of a suspension of luminescent material and a silicate solution, and water, which process comprises the steps of: establishing a flow of each of said ingredients into said mixing chamber and regulating the flow of each of said ingredients to an assigned preselected value; discharging the admixture from said mixing chamber in timed relation to the influx of said ingredients; selectively terminating the flow of said suspension of luminescent material and of said silicate solution into said mixing chamber to obtain said predetermined quantities thereof while continuing the influx of water to flush said chamber; and thereafter terminating the discharge from said mixing chamber filled with water and effectively preventing entry of air thereinto.

## Lacquer Containing Hydrocarbon Resin

U. S. Patent 2,648,640. Herman S. Bloch, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill., a corporation of Delaware

A lacquer composition comprising a resinous ingredient, and oxidation inhibitor capable of terminating the oxidation of said resinous ingredient when exposed to atmospheric oxygen, and a solvent for said resinous and inhibitor ingredients, said resinous ingredient comprising the product formed by oxidation of a mixture of unsaturated conjunct polymer hydrocarbons recovered from an acid-acting catalyst-hydrocarbon complex formed in the catalytic conjunct polymerization of hydrocarbons and consisting of polycyclic, cyclic hydrocarbons boiling in the range of from about 150° to about 450° C. and having bromine numbers above about 140 and maleic anhydride values of from about 30 to about 90 and containing from about 2.5 to about 4 double bonds per molecule of which from about 40 to about 70% are in conjugated relationship to each other.

MOST EFFICIENT OF ALL INDUSTRIAL OVENS

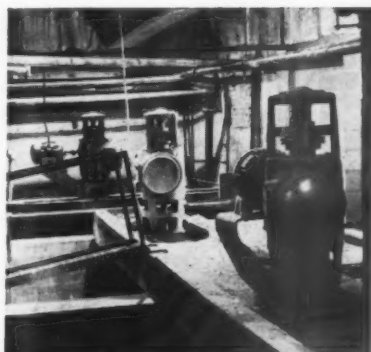


**PIGMENT IS ADDED** to vehicle. Note special off-center mixing angle, which provides rapid uniform mixing throughout the tank.



**FULLY UNIFORM PRODUCT**—only 3 minutes later. Mixer shown is standard ½-HP LIGHTNIN Portable Mixer. Larger units are made for tanks of any size.

## Tint 75 gallons in just *3 minutes*



**FOR BIG MIXING JOBS**, LIGHTNIN turbine and paddle mixers are supplied in hundreds of power-speed combinations, for open and closed tanks. Up to 16 speeds, easily interchangeable. Sizes 1 to 500 HP.

Three short minutes from pigment addition to full color uniformity.

This is just one example of the rapid, thorough mixing you get when you let a LIGHTNIN engineer serve you on paint mixing.

He may be able to help you cut mixing time to a fraction of what it takes you now.

Tests show that the *right kind* of mixing can cut your horsepower requirements, too. (In many plants, the job can be done with as little as 1/10 the power actually being used.)

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guaranteed—with LIGHTNIN Mixers. Over 100 models are available, to meet your needs exactly.

The LIGHTNIN Portable Mixer shown above is easily changed from tank to tank. It swings to any angle, for correct mixing or easy cleaning.

More than 30 portable models are available, with electric or air motors to match your conditions. Sizes ⅛ to 3 HP.

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**MIXCO fluid mixing specialists**

## Short Oil Modified Alkyd

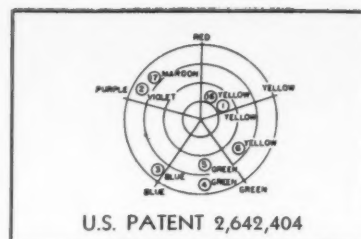
U. S. Patent 2,649,423. Frank R. Spencer, Stamford, Conn., assignor to American Cyanamid Company, New York, N. Y., a corporation of Maine.

A coating composition, capable of yielding on baking a non-cratering film, comprising a compatible blend of an alkyd resin modified with up to 25% of a material selected from the group consisting of semi-drying and non-drying glyceride oils and their acids, a butylated melamine-formaldehyde resin, and from 0.05% to 10% by weight of a polymeric alkyl ester of an alpha, beta unsaturated carboxylic acid, wherein said percentage by weight is based on the total weight of the resin solids.

## Fire Retardant Coating

U. S. Patent 2,648,641. John E. Robison, Warren, Oreg., assignor to Fir-Tex Insulating Board Co., St. Helens, Oreg., a corporation of Oregon.

A fire retardant, washable intumescent coating composition of the character described including a reacted amino-plast-aldehyde resin selected from the group consisting of urea-formaldehyde resin and melamine formaldehyde resin, an amido compound selected from the group consisting of melamine and dicyandiamide, and a carbohydrate as the active ingredients, the said active ingredients being approximately in the relative ratio of 1:2:1 respectively, and said active ingredients carried in a solvent.



## Color Blending

U. S. Patent 2,642,404. Ralph E. Pike, Media, Pa., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware.

A coating composition adapted to yield a tough, durable finish having a metallic appearance of great depth and brilliance, comprising a vehicle and pigment, said pigment consisting of (A) the nickel complex of the azo dye obtained by coupling diazotized parachloraniline with 2,4-dihydroxyquinoline; (B) pigment substantially complementary in color to the said (A) pigment in amount to yield a gray when mixed separately therewith; (C) at least one colored tinting pigment and (D) finely divided flake aluminum metal.

## Synthetic Drying Oils

U. S. Patent 2,650,209. Joseph F. Nelson, Rahway, and Anthony H. Gleason, Westfield, N. J., assignors to Standard Oil Development Company, a corporation of Delaware.

A process for preparing a drying oil which comprises mixing a cyclopentadiene with an acylated linear copolymer of about 10 to 30% styrene and 90 to 70% isobutylene having a molecular weight between about 1,000 and 20,000 and containing about 0.2 to 1 mole of combined acyl groups per mole of aromatic styrene nuclei of the copolymer chain, about 0.5 to 1.2 moles of the cyclopentadiene being present in the reaction mixture per mole of combined acyl groups and maintaining the mixture at 10° to 50° C., in the presence of a metal alcoholate condensing agent until the cyclopentadiene and the carbonyl groups of the acylated copolymer are condensed with the elimination of water.

## Tall Oil-Polyamino-Aldehyde Products

U. S. Patent 2,640,814. Alfred F. Schmutzler, Stamford, Conn., assignor to American Cyanamid Company, New York, N. Y., a corporation of Maine.

A process for the preparation of a hydrocarbon solvent soluble resinous material comprising heat-reacting tall oil with an aldehyde-reactable resin forming polyamino compound, adding an aldehyde and heat-reacting the mixture to form a resinous material.



## ADVANTAGES

- Brighter and More Brilliant Appearance
- Higher Contrast or "Flop"
- Greater Durability
- Greater Ease of Dispersion

Send for bulletin on these new MD NON-LEAFING ALUMINUM PASTES



Two new types of non-leafing aluminum pigments, MD 584 and MD 784, developed by the MD Laboratories, are now offered for use in protective and decorative coatings.

MD 584 NON-LEAFING ALUMINUM PASTE, Standard Lining Grade, is designed for improved appearance and workability in metallescent finishes for automotive and industrial use.

MD 784 NON-LEAFING ALUMINUM PASTE, Fine Lining Grade, has been created specifically for hammer finishes and metallic enamels.

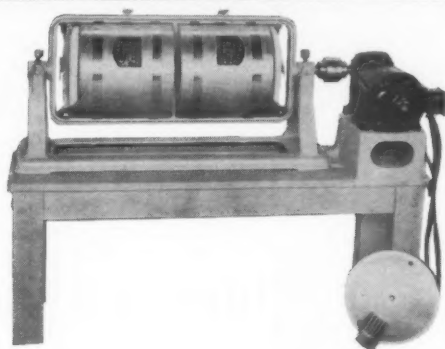
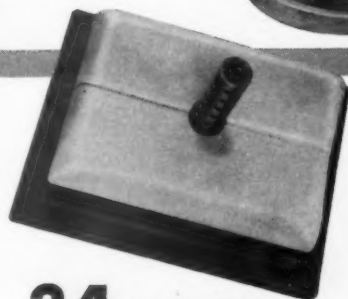
Each of these pigments characterizes the features of uniform particle size distribution with the resultant bright, clean color effect and improved reflectance contrast, or "flop".

While each pigment was designed for specific applications, users have found instances where each pigment has been successfully used alternate to the recommendations.

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Elizabeth B, New Jersey

Plants: Elizabeth, N. J., Manchester, N. H., Berkeley, Calif., Emeryville, Calif.

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**VELSICOL RESINS**

**AD·21**  
**AB·11·2**

## For High Lustre, Good Leafing Aluminum Paints

Velsicol Resins AD-21 and AB-11-2 are especially suitable for economical excellent quality aluminum vehicles and ready-mixed aluminum paints. These neutral hydrocarbon resins are soluble in both aliphatic and aromatic naphthas, and are compatible with bodied vegetable and marine drying oils. They impart fast-drying characteristics. Solutions of the resins have high surface tension properties which promote leafing and flooding of aluminum pigment. The non-acidity of the solutions favors long leaf retentivity. AD-21 and AB-11-2 are available in either solid or solution form. For information and advice about their use, write to the Velsicol Corp. Technical Department.

### OTHER SUGGESTED APPLICATIONS FOR VELSICOL RESINS

- Floor and trim vehicles.
- General utility varnishes.
- Traffic paints.
- Extenders for 100% oil soluble phenolic resins.
- Extenders for Chlorinated rubber.
- Metal primers.
- Drum coatings.
- Decorative can enamels.
- Grinding liquids.

### PROPERTIES

- Low degree of solvent retentivity.
- Non-acidic.
- Non-saponifiable.
- Coatings resistant to water, aqueous acids and alkalis.
- Soluble in aliphatic and aromatic naphthas.
- Compatible with vegetable and marine drying oils.
- Vehicle films are hard, flexible and adherent.
- Resin solutions promote excellent leafing and flooding of aluminum pigment.

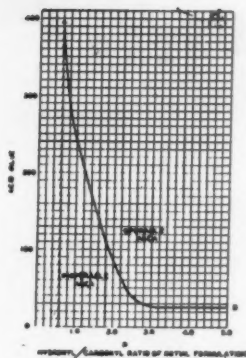
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REPRESENTATIVES IN PRINCIPAL CITIES





U.S. Patent 2,650,199

#### Maleic Polyester Compositions

U. S. Patent 2,646,410. Joseph Wayne Kneisley, Marshallton, Del., assignor to Hercules Powder Company, Wilmington, Del., a corporation of Delaware.

A composition suitable for coating and impregnating applications comprising an aqueous solution of a heat-convertible reaction product of a polyhydric alcohol and an  $\alpha,\beta$ -unsaturated dicarboxylic acid, said polyhydric alcohol being selected from the class consisting of polyhydric alcohols of from 2 to 6 hydroxyl groups per molecule and mixtures thereof, said polyhydric alcohol containing no functional groups other than OH groups, containing no oxygen except in the form of OH groups and having an OH/C ratio of from 0.6 to 1.0, said  $\alpha,\beta$ -unsaturated dicarboxylic acid being selected from the class consisting of maleic acid and maleic anhydride, said reaction product being one having at least half of the COOH groups originally presented by the reactants esterified as evidenced by the acid value of the reaction product but at the same time having an acid value of at least the minimum value for the particular OH/COOH ratio employed as defined by line AB of the figure, said reaction product being soluble in water without the aid of any alkaline solubilizing agent said composition combining the properties of dilutability with water to at least 15% concentration of the reaction product in water and the ability to provide insoluble, infusible films by heat-conversion.

#### Vinyl Transparent Film

U. S. Patent 2,647,101. Bingham J. Humphrey, Mount Carmel, Conn., and Robert J. Reid, Canal Fulton, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio.

Process which comprises supplying (A) a polymerization-produced latex of a copolymer of (1) a butadiene-type compound selected from the group consisting of butadiene, isoprene, 2-methyl pentadiene-1,3, and mixtures of these compounds with (2) from about 15%

to about 75%, based on the weight of the copolymer, of an acrylonitrile-type compound selected from the group consisting of acrylonitrile, methyl acrylonitrile, and mixtures of these compounds, substantially dewatering said latex without the application of heat, dissolving the copolymer in an organic solvent therefor to form a true solution thereof, incorporating in said solvent, for 20 to 120 parts of the copolymer, (B) 100 parts of a resin selected from the group consisting of polymers of vinyl chloride and copolymers thereof with up to 20%, based on the weight of such copolymers, of non-cross-linking unsaturated compounds copolymerizable therewith, casting, upon a support, a film from the resulting solution, drying said film, and stripping said film from said support.

#### Pigment Paste

U. S. Patent 2,647,094. Frank J. Hahn, Springfield, Mass., assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware.

A pigment paste comprising water, 100 parts of a pulverulent water-insoluble pigment and from 1 to 50 parts of a salt prepared by neutralizing a copolymer of styrene and a half-ester of maleic acid with a compound taken from the group consisting of ammonia, morpholine and alkyl amines which are volatile at temperatures below 100° C., the ester groups in said half-ester consisting of a mixture of methyl groups and secondary butyl groups, the ratio of methyl groups to secondary butyl groups varying from 11:89 to 48:52 mol percent.

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CUT GRINDING COSTS AND AVOID DISCOLORATION  
with PENNEBACKER NI-HARD BALLS

(left) One Half of a Ni-Hard ball mounted in lucite, ground and polished to mirror finish to demonstrate soundness of structure. (right) Typical  $\frac{3}{8}$  inch Ni-Hard grinding ball.

A charge of  $\frac{3}{8}$  inch Ni-Hard balls after 5 months of paint grinding service.

**Ni-Hard**, the nickel-chromium iron which has successfully demonstrated its resistance to abrasion in the milling of both metallic and non-metallic minerals, is now available at moderate cost to the Paint Industry in the form of grinding balls.

The high hardness and wear-resistance of Ni-Hard means longer service life in the grinding of pigments, hence higher production and ultimate economy.

Moreover, discoloration is minimized when Ni-Hard balls are used. Paint manufacturers have found that pastel pigments can be safely ground with Ni-Hard balls where previously flint pebbles had to be used to avoid discoloration which occurred with steel balls. Naturally also, the greater density of the metal ball makes a substantial contribution to mill efficiency as compared with the use of the lighter pebbles.

#### FIELD PROVEN SUPERIORITY:

1. On  $\frac{3}{4}$  inch diameter balls grinding magnesium silicate in mineral oil, Ni-Hard showed an approximately 2 to 1 superiority over two types of high carbon steel as follows:

BALL MATERIAL	% WEIGHT LOSS IN 5,000 HOURS
Ni-Hard . . . . .	5.52
Steel A . . . . .	11.35
Steel B . . . . .	12.95

2. A midwestern paint plant using  $\frac{3}{8}$  inch balls reported the following results:

BALL MATERIAL	WT. LOSS (LBS.) IN 2,500 HOURS
Ni-Hard . . . . .	103
Steel . . . . .	182-202

3. A Pennsylvania paint plant has used  $\frac{3}{8}$  inch Ni-Hard balls in regular grinding mill service for four years with excellent results both as regards economy and avoidance of discoloration problems.

Numerous paint manufacturers have now regularly adopted Ni-Hard balls. Interim reports indicate an increasingly wider acceptance of this efficient yet moderate priced modern grinding medium throughout the Paint Industry.

• Pennebacker Ni-Hard balls are available in four sizes:  $\frac{5}{8}$  inch,  $\frac{3}{4}$  inch,  $\frac{7}{8}$  inch and 1 inch diameters.

• Delivery: Immediate, in bags or drums. All balls supplied in the stress-relieved condition to assure the maximum combination of abrasion-resistance and toughness.

**THE PENNEBACKER COMPANY, EMMAUS, PA.**

### Polyvinyl Acetal Resins

U. S. Patent 2,644,807. Herman S. Eloch, Chicago, Ill., assignor to Universal Oil Products Company, Chicago, Ill., a corporation of Delaware.

The resinous condensation product of a partially hydrolyzed polyvinyl alcohol ester homopolymer and a condensation product of ammonia and butyraldehyde.

### Alkyd Resin

U. S. Patent 2,647,095. Carl J. Opp and Raymond E. Werner, Cincinnati, Ohio, assignors to Interchemical Corporation, New York, N. Y., a corporation of Ohio.

An alkyd resin comprising the reaction product of a polybasic carboxylic acid, a polyhydric alcohol, and the copolymerization product of rosin with a monomer of the class consisting of styrene and methyl methacrylate in the presence of a peroxide catalyst and an alkyl mercaptan having at least four carbon atoms, said alkyd resin being compatible with urea-formaldehyde and melamine-formaldehyde resins.

### Medium Oil Alkyd

U. S. Patent 2,648,642. Frank R. Spencer, Stamford, Conn., assignor to American Cyanamid Company, New York, N. Y., a corporation of Maine.

A composition of matter comprising a compatible blend of about 10-50 parts of an amino-plast resin selected from the group consisting of melamine-aldehyde resins and urea-aldehyde resins, about 90-50 parts of an alkyd resin modified with 26%-50% by weight of a material selected from the group consisting of semi-drying glyceride oils, nondrying glyceride oils and the fatty acids derived therefrom and 0.5% to 10% by weight of a modifier comprising a polymeric alkyl ester of an alpha, beta unsaturated carboxylic acid.

### Phenolic Ester Resins

U. S. Patent 2,649,422. David Aelony, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware.

A liquid, low acid number ester of an oil-insoluble phenol formaldehyde resin substantially free from methylol groups, said resin containing an average of from about 4 to about 10 phenolic groups per molecule and being derived from the acid catalyzed condensation of from 2 to 2½ moles of formaldehyde per 1 mole of phenol and being substantially free from phenol and bisphenols, the hydroxyl groups of the resin being esterified at least about 60% by means of an unsaturated higher fatty acid having at least semi-drying characteristics, said ester being substantially free from acetyl groups.

### Silicone Lacquers

U. S. Patent 2,647,880. Siegfried Nitzsche, Burghausen, Upper Bavaria, Germany, assignor, by mesne assignments, to Wacker-Chemie G. m. b. H., Munich, Germany.

The process for producing solvent-soluble silicone resins from alkylsilicon halides which comprises reacting ethanol with an alkylsilicon halide containing at least two halogen atoms per silicon atom, in an amount insufficient to effect replacement of all of the halogen atoms of said silicon halide, whereby a part only of said halogen atoms are replaced by ethoxy radicals, then partially hydrolyzing the reaction product with water in the absence of a water immiscible solvent, adding a solvent for the reaction product, which solvent is immiscible with water, and then interacting the reaction product in the resulting solution with water in amount

sufficient to completely hydrolyze all remaining halogen atoms and alkoxy radicals and in amount sufficient to form a separate water layer, and separating the water layer from the siloxane solution so produced.

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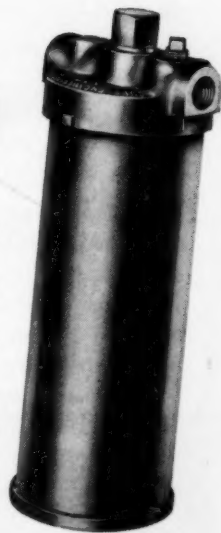
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# abstracts



## Pigment Milling Without Binder

Daniel, F. K., Nuodex Dispersion Laboratory. Presented at ACS, Div. of Paint, Plastics, and Printing Ink Chemistry, March 15-19, 1953, at Los Angeles, Calif.

The paint industry has long looked for a "neutral" grinding medium which is compatible with conventional paint

vehicles and which does not change the properties of the finished product. Solvents would be an ideal medium

but cannot be used alone because they fail to deflocculate the pigments. Dispersing agents overcome this difficulty, but "seeding" and loss of gloss occur when the fixed vehicle is added to such pastes.

This seeding can be prevented by small amounts of gel formers such as aluminum octoate in combination with zinc naphthenate or other "peptizers" which convert the rigid gel into a viscous liquid. The amount of peptized gel and the ratio of the two components vary with each pigment. Some pigments weaken the gel structure, others increase it. Generally 1.5 to 4.0% on the weight of paste is sufficient.

Advantages of these pastes are: high pigment concentration, rapid grinds, no hard settling, and single paste usable in several paint systems.

Its limitations are: not applicable to all pigments, not suitable for roll mills, and needs careful formulation and plant operation.

On balance, peptized gel formers are a useful tool for quick grinding of inorganic pigments for highly concentrated stock pastes. They are not a universal grinding medium.

## Modern Anti-Rusting Pigments

Chiaudano, S., *Lack und Farbechemie*, 6 (1952), 3-9

Red lead in linseed oil offers a comparatively high degree of rust-protection but tends to settle on prolonged storage due to the reaction of free PbO with the fatty acids of linseed oil. More interesting are the modern zinc and lead chromate products and the passivation of iron surfaces by means of soluble chromium ions. The polybasic lead chromates are able to form lead soaps insoluble in water which on account of their scaly character may produce high anti-rusting effects in paints (similar to that induced by iron mica mixtures) in which the products of reaction between PbO and fatty acids represent the insoluble cementing vehicles. The tri- and tetrabasic zinc hydroxide chromates developed of late are free of soluble foreign salts; they differ from the common zinc yellows of the trade in their glazing effect and in the almost complete absence of coloring power. They are well suited for use as an anticorrosive additive to inert pigments of high coloring power. Precipitated strontium chromate and thermally produced potassium barium chromate possess considerable anticorrosive influence on account of the soluble chromate ions formed.

New anti-rusting pigments besides lead cyanamide are basic lead phosphate, the plumbates of calcium, barium and strontium as well as iron-ammonium phosphate.

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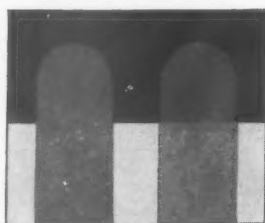
VISCOSITY.....V-Y  
NON VOLATILE...30%±1%  
COLOR.....8 Maximum  
ACID NUMBER...10 Maximum (on solids)  
WEIGHT per gal...7.3 lbs.  
TYPE.....Pure drying oil alkyd.  
USES.....Interior flats, primer sealers,  
enamel undercoaters,  
semi-gloss, etc.

The finishes produced with \*FAFL are easy brushing, highly washable and very durable. They have shown excellent package stability and suspension properties. May also be used for primer sealers, undercoaters and semi-glosses.

\*FAFL is an alkyd flat vehicle.

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\*FAFL AVERAGE  
Alkyd Flat  
Paint Paint

Black section in above illustration is a sealed surface. Light section is a porous surface.

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## Cyclicized Rubber in Paint Films

Worsdall, H. C., *Peintures, Piments, Vernis*, 1952 (28) pp 80-89.

Cyclicized and isomerized rubbers have assumed growing importance in paints and varnishes beside the chlorinated and oxidized rubbers used for this purpose for many years past. Isomerization is usually effective by means of acid catalysts at raised temperatures. Prolongation of the period of reaction produces correspondingly harder and brittler rubber resins. Cyclicized rubber contains up to 99 percent of pure caoutchouc, while chlorinated rubber contains only 34 percent of pure caoutchouc, the remainder consisting entirely of chlorine. Present commercial qualities of cyclicized rubbers can be used together with aromatic hydrocarbons, drying oils, and a certain number of alkyd resins. On account of its relatively low solution viscosity, cyclicized rubber may yield highly concentrated solutions.

As a general rule these rubbers are used in connection with plasticizers. Relatively heat-resisting films up to 230 degrees Centigrade, (446° F.), can be obtained with isomerized rubber whereas if aluminum bronze is employed as the pigment, the heat resistance may reach 600 degrees Centigrade (1100° F.). Plasticizers used for this purpose include dibutyl phthalate, diamyl tartrate, tricresyl phosphate. Paint films required to be impervious to ultraviolet light should contain—besides cyclicized rubber—dibutyl phthalate and a high pigment percentage of titanium dioxide or oxide of iron. Cyclicized rubber can also be used in combination with silicone resins. A very important feature is its high degree of resistance against many chemicals, and since it is soluble in harmless aromatic hydrocarbons, it can also be used for interior coatings of shipping or storing barrels and other containers. Cyclicized rubber is resistant against dilute mineral acids and non-oxidizing concentrated mineral acids, against most organic acids—especially against acetic acid—, against alkaline solutions as well as esters, alcohols, ketones, etc. Isomerized rubber is more resistant against boiling 2-percent soda solution than chlorinated rubbers which are gradually decomposed in the heat.

Isomerized rubber can also be employed as priming agent for cement, asphalt-cement and fresh lime mortar, a well-proved plasticizer for this purpose being phenol resin-wood oil varnish. Water dispersions of isomerized rubber yield films highly adherent to porous lime plaster, while rubber products of this type combine well

## READCO DOUBLE ARM MIXERS

Readco Double Arm Mixers are available in capacities up to 750 gallons.

Readco Double Arm Mixers continue to provide rapid, thorough dispersion of pigments in water reducible vehicles for leading paint manufacturers throughout the country. They are producing around the clock under the most severe operating conditions . . . without downtime.

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Bakery-Chemical Division: YORK, PENNSYLVANIA—LOS ANGELES 39, CALIFORNIA

with concrete. Swimming pools, fish ponds, and similar structures have already erected with combinations of this type and have proven absolutely impervious to water from within and to ground water from without.

Cyclicized rubbers are also employed in the manufacture of printing inks and rust-resisting paints and varnishes, suitable pigments being sulphate of white lead, carbonate of white lead and heavy spar as well as aluminum bronze in mixture with zinc dust. The pigment contents of protective films should amount to at least 90 percent of the dry substance, with 85 percent of zinc dust and 5 percent of oxide of zinc. Suitable vehicles for this purpose are mixtures of rubber-resins and linseed oil (about 8:2).

#### Color Reaction of Fluorine Ions With Titanium Compounds

Babke, A. K. and Chodulina, P. W. *Russian Journal of Chemistry*, 7(1952) pp. 281-284.

It is well known that fluorine ions do not form colored compounds, and that they are able to discolor colored metallic compounds. The authors developed this property so as to serve as a delicate method of the determination of the color intensities of titanium compounds on one hand and the quanti-

tative presence of fluorine ions on the other. The paper describes the sensitivity of the fluorine ion test in the case of a number of colored titanium compounds as well as the influence of the degree of acidity on the intensity of titanium complexes containing coloring acids. Best results are obtained with the degree of acidity corresponding to a pH-value of 3. The authors then describe the various possibilities of increasing the sensitivity of these tests. The red color of the colored titanium complexes is weakened in the presence of fluorine ions; however, since the human eye recognizes color changes much more strongly than a weakening of color intensities, it is advisable to add a blue dye resistant to acids to the solution of the colored titanium complex; a substance of this type is methylene blue, mixtures of this dye with the red titanium compound forming brown solutions. Additions of fluorine ions induces an intensive change of color from brown toward blue, the slightest changes being recognized with ease. The degree of sensitivity of the fluorine ion is 1 mg. in drop tests, the maximum degree of solution being 1 : 50,000. The test can be carried out in presence of large quantities of sulfate, while the presence of phosphates render it uncertain.

#### Evaluation of Fungi-Resistant Primers

Zycha, H., *Holz., Roh- und Werkstoff*, 10 (1952) pp. 41-43.

The author criticizes the methods of determination developed and propagated by the Standards Societies, particularly by the German Standard Society (DIN 52L76) as these are merely concerned with block method, which did not prove satisfactory under practical conditions. According to Zycha, high resistance to the formation of blue sap fungi can be obtained with paints penetrating very little into the wood surface as long as the films are sufficiently dense and poisonous. Ordinary wood protecting paints, on the other hand, have to penetrate deeply into the wood in order to ensure perfect protection against wood-destroying fungi. Priming coats containing special additions such as, for instance, 2 to 5 percent of penta-chlorophenol exert maximum fungicidal effects only if the depth of penetration suffices. Reliable tests of the fungicidal effects of paints can be obtained if the test panels are provided with a priming coat on only one side and are then subjected to the attack of the fungi in question, such as cellar and mine fungi, conio-phora cerebella, etc.



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## Products of Hexamethyl-Diamine with Aldehydes

Thinius, K., *Chemische Technik*, 5 (1953) pp. 279-283.

The condensation of hexa-methylene diamine with formaldehyde leads to poly-bis-N,N'-methylene-hexa-diamine in acid and alkaline media. However, while within the alkaline range a condensation product insoluble in the usual organic solvents is separated quantitatively, acid media cause the formation of polymeric methylol compounds in the form of soft resins, which are suited as plasticizers for the polyvinyl alcohols. Comparison with other plasticizers indicated the advantage of higher additions in comparison with the frequently used glycerin. The fact that alkaline media cause the pre-

cipitation of water-insoluble compounds it can be employed to eliminate the water-solubility of polyvinyl alcohol films by alkaline treatments; practically the same effect is obtained by subjecting the films to suitable heat treatments.

Previously unknown products of condensation were produced by reaction of hexa-methylene diamine with chloral.

## Dimer Acids

Kaufman, Dr. and Schmidt, Mr. *Chemische Technik* 5 (1953) p. 152.

Dimer fatty acids are obtained by the polymerization of unsaturated fatty acids, and most of the dimeric fatty acids now used is being manufactured in the U. S. A. Dimer fatty acids represent primary products of the

drying reactions of oil. Isolation of these acids is effected by high vacuum distillation and is analytically determined by means of paper chromatography. Dimerization involves the continuance of two free double combinations, so that polymerization must be stopped at a certain point. A suitable raw product for this purpose is maize oil which does not contain linolenic acid and which is dimerized in autoclaves in presence of water vapor. Isolation is effected over the methyl ester. Pure dimer fatty acids are highly viscous oils. Their presence in varnishes and lacquers improves the drying process and prevents folding and wrinkling of films. It is also supposed to improve steam resistance considerably. Dimeric fatty acids are also used for other purposes. Reaction with ethylene diamine leads to the production of polyamide resins exhibiting properties similar to shellac while the aluminum soaps of dimeric fatty acids are useful lubricating greases.

## Polarographic Measurements of Pigments and Siccatives

Kaufmann, Dr., Schweitzer, Dr., and Wirts, Mr. *Chemische Technik* 5(1953) p. 152.

This paper describes the results of large numbers of investigations of present testing methods and equipment. The investigations included zinc oxide, lithopone and red lead, while the corresponding investigations of the siccatives were applied to mixtures of amyl alcohol and ethanol, so that preliminary destruction of the organic substances was unnecessary. One of the difficulties encountered in the polarographic measurement of siccatives was found with cobalt and manganese because of close measurement encountered with these materials. In order to obtain a more favorable evaluation of potential, it was found practical to add lithium chloride which displaces cobalt toward the positive side.

There can be no doubt that if polarographic apparatus is available, this method is highly suited for practical purposes on account of accuracy and rapid execution of tests.

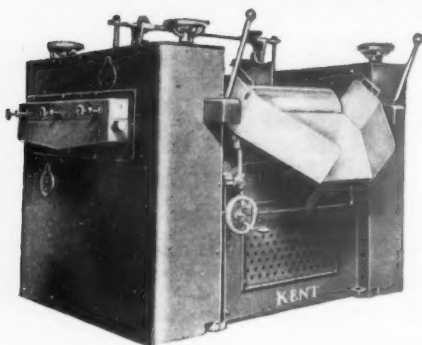
## Use of Isocyanates in Varnishes and Lacquers

Sjollema, F., *Verfkroneik*, 24, pp. 302 and 340.

According to Sjollema the use of the isocyanates is based on the reaction of the  $-N=C=O$  compounds with compounds containing active H:  $-R-N=C=O+R'-OH \rightarrow R-NH-CO(OR')$  resulting in the production of urethane. The reaction of isocyanates with fatty acids serves to reduce the acid number of alkyls.

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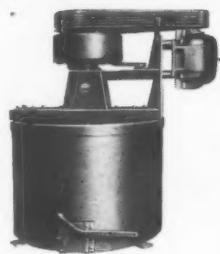
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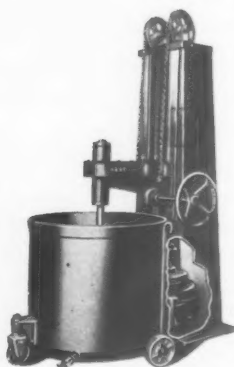
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In the production of the urethane oils, the mono- and di-glycerides are transformed into a suitable polyisocyanate at 100 degrees Centigrade. Diisocyanates are used, as a rule, since the higher isocyanates cause gelatinization. Aromatic diisocyanates produce better drying products than aliphatic isocyanates produce better drying products than aliphatic isocyanates, while the latter yield more elastic films. Of the various isocyanates (Desmodur) treated with corresponding isocyanates-alkyds, Desmodur T is pure toluol-diisocyanate, while Desmodur TH represents a mixture consisting of 1 mol of hexantriol and 3 mol of Desmodur T.

The desmophenes suitable for varnishes and lacquers consist of various

products of reaction of phthalic acid anhydride, adipic acid and polyalcohols and have a viscosity of alkyds containing 25 to 35 percent of phthalic acid anhydride. The solvents used must contain no active hydrogen. One single application does not suffice as a rule; the films are rather thin and are not very resistant against the action of strong acids and bases, methylene chloride and benzene-alcohol mixtures. The water resistance is excellent. Suitable pigments are absolutely dry titanium dioxide, lithopone, cadmium yellow, chromium oxide green and various iron oxides. Lacquers of this system are specially suited for insulating and wire lacquers, paper and light metal lacquers as well as for plastics, glass, caoutchouc (rubber) and leather.

## Anti-Rusting Paints in The Mining Industry

*Bierner, L., Technische Mitteilungen, 45(1952) pp. 199-209.*

The only paint mixtures offering sufficient anti-rusting qualities under the conditions characteristic of mines and mining industries are those based on the air-drying oils, synthetic and natural resins, the bituminous and tar paints and some of the silicone resins. Not less than three coatings are required in all cases, one priming coat and two top coats. The priming coat should assume all the anti-rusting action required, the second top coat should protect the lower coatings while the first top coating (the intermediate coating) represents the indispensable connecting link between the anti-rusting prime coat and the top coat. Anti-rusting pigments should be polydispersed. The smaller the diameter of the largest particles present, the more pronounced are their anti-rusting capacities. Another feature is the crystalline shape of the pigments, also the freedom from water-soluble electrolytes.

The author points out in a lengthy discussion that only few of the a) low molecular resins, b) high molecular resins, c) yellow resins can be used for this purpose, and that while every film forming substance is a resin, not every resin is a film forming substance, particularly for the purposes of anti-rusting paint films.

## Formulation of Flat Latex Wall Paints

*Davis, J. P., Chemical Products Development Div., Goodyear Tire & Rubber Co., Inc., Akron, O. Presented at ACS Meeting, Div. of Paint, Plastics, and Printing Ink Chemistry, Chicago, Ill., Sept. 6-11, 1953.*

Since the advent of latex-emulsion wall paints in 1948, there has been little or no suitable formulation and manufacturing information made available to the paint industry as a whole.

This paper presents the most recent advancements in latex-emulsion paint technology to meet this need. The report discusses the components which are utilized in the production of latex-emulsion paints; a series of formulations as well as recommended manufacturing procedures is included. Comments and examples on emulsification of latex-vehicle modifiers are given.

The main subjects discussed are: pigments and extenders, pigment volume concentration, pigment aids and dispersants, modified latex-emulsion paints, the use of driers in unmodified systems, the use of thickeners, protein processing methods, extension of wet edge-time, freeze-thaw stability, latex storage, and paint equipment and processing methods.



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### Air Drying Polysulfide Rubber Paint Films

Panek, J. R.; Jorczak, J. S.; and Colon, H. (present address, Federal Adhesives Corp., Brooklyn 11, N. Y.), Thiokol Corp., Trenton, N. J. Presented at ACS, Div. of Paint, Plastics, and Printing Ink Chemistry, March 15-19, 1953, at Los Angeles, Calif.

Polysulfide polymers have been used for many years as materials of construction in the aircraft industry. This paper deals with the applicability of a paint based on Thiokol liquid polysulfide polymer LP-2 and which depends on oxygen in the air for conversion. The base polymer has good solvent resistance and good low temperature flexibility.

Properties of LP-2 paint compounds and recommendations for method of application are included. Uses of the polysulfide rubber film for coating leading edges, and radomes, and sealing normally inaccessible areas are discussed.

An unusual side property was discovered when the polysulfide paint film was tested for electrical resistance. In contrast to all the other natural and synthetic rubbers in compounds tested to date, the polysulfide paint film possesses an electrical resistance characteristic which decreases as much as 100 times for elongation of 20% or less.

### Effect of Surface Active Agents On Pigment-Vehicle Systems

Denning, R. and Daniel, F. K., Nuodex Dispersion Laboratory. Presented at ACS, Div. of Paint, Plastics, and Printing Ink Chemistry, March 15-19, 1953, at Los Angeles, Calif.

The purpose of this investigation was to classify fixed vehicles according to their wetting and dispersing characteristics and to find effective surface active agents to improve the properties of the poorer wetting vehicles. Six representative pigments were examined with three different vehicles, with and without surface active agents.

The investigation led to the following conclusions:

No one vehicle rates as the most effective in wetting and dispersing power for all six pigments.

The effect of surface active agents differs with each vehicle and with each pigment. The same agent which improves dispersion of a pigment in one vehicle may act detrimentally in another vehicle, and each pigment responds differently to each surface active agent. This means that the efficiency of a given agent is specific for each particular pigment-vehicle combination and not, broadly, for either pigment or the vehicle.

Surface active agents often have a

greater effect on a dispersed pigment-vehicle system than on a poorly dispersed system.

A combination of surface active agents was found which scored higher in effectiveness for numerous pigment-vehicle systems than any single surface active agent tested. However, even this product is not as effective as some specific agent may be in certain pigment-vehicle systems.

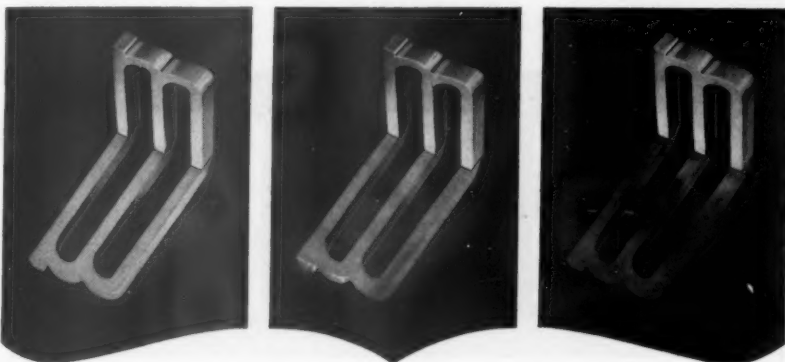
### New Polyol

Wullenweber, Ing., *Chemische Technik*, 5(1953) p. 152.

The known types of poly-alcohols employed instead of glycerin are obtained by condensation of aldehydes with formaldehyde. It appeared quite obvious therefore that similar results

should be attainable by inducing reactions between formaldehyde and aliphatic ketones such as methyl ethyl ketone.

The mechanism and progress of this reaction were carefully studied. If condensation does not proceed properly the product assumes a dark color. At first it appeared to be impossible to esterify the new poly-alcohol stoichiometrically since etherification could not be entirely prevented—until small amounts of pentaerythritol were added to the mixture of reaction. The resin esters thus produced cannot be modified with phenol alcohols anymore, although it is possible to obtain oil-modified poly-esters. The formation of an alkyd of medium oil contents (53 percent linseed oil) proceeds with



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satisfactory speed. It is more difficult to produce an alkyd containing 35 to 40 percent of linseed oil. The paper contains a detailed description of the influence of the new poly-alcohols on the esterification of linseed oil.

#### Tension Measurements by Use of Crackle Lacquers

*Delpeyroux, M., Peintures, Pigments, Vernis, 27(1952) p 748-757.*

Tension in metals, etc. can be measured by means of photoelasticity methods (double fractions in polarized light) extensimetric methods and crackle lacquers. The latter method is very rapid but yields only qualitative, though qualitatively reliable, results. The workpiece to be tested is painted with a thin film of crackle lacquer whose cracking tension is far lower than that of the test piece. If the latter

is then subjected to tensile stresses, the lacquer film cracks, forming lines of elongation on the surface of the test piece vertical to the direction of the main tensile stresses. It should be borne in mind that this method is limited exclusively to surface tensions, but not to the tensile stresses of the interior of the test pieces if these do not coincide with the surface stresses. In evaluating the lines of elongation, attention must also be paid to the fact that the crackle lacquers may not follow the general rule at certain "singular" points of the isostatic netting as well as in surface sections where the two tension components represent pressure stresses. This crackle lacquer method has been used by the Maybach Motor Works in testing their motors since 1926. Best results were obtained with solutions of colophony, lime and zinc resins.

#### Influence of Oils and Fatty Acids on Properties of Alkyds

*Stieger, Dr., Chemische Technik 5(1953) March.*

The author first discussed the influence of the various dibasic acids and poly-alcohols. Phthalic acid is usually inferior to the other dibasic acids while adipic and sebacic acids are sometimes employed for soft resins. Pentaerythritol, trimethylol propane and butantriol represent valuable substitution products, while hexantriol has played a very important part during and after the war.

Of the various processes of production, the re-esterification process developed by the IG-Farben has assumed increasing importance, while linseed oil still forms the most important oil constituent. Polymerized linseed oil must be treated with care in order to avoid yellowing. Soy bean oil is being used in increasing amounts but tends to reduce gloss and surface hardness. Wood oil induces a considerable increase of the degree of viscosity and is not therefore used as raw material in the manufacture of these substances. Perilla and oiticica oils are not used very much in Germany, while tall oil has proven its usefulness. Fish oils and first-running fatty acids cannot be used for non-drying soft resins.

#### Effect of Excess Polyol on Maleic Alkyd Preparation

*Brand, B. G., Sill, A. D., and Mueller, E. R., Battelle Memorial Institute, Columbus 1, Ohio. Presented at ACS, Div. of Paint, Plastics, and Printing Ink Chemistry, March 15-19, 1953, at Los Angeles, Calif.*

A study of the effect of amount and type of excess polyol on the cooking characteristics and film properties of a maleic-tall oil alkyd has shown a marked effect on vehicle bodying rate, a slight difference in storage stability and cold-water resistance, and drying rate and adhesion to be essentially unaffected. Excess glycerol over the range from 0 to 25% and pentaerythritol from 0 to 10% were studied. Data are presented in graphic form for viscosity development and storage stability. Gelation of a glycerol-maleic alkyd, using 9.5% maleic anhydride, requires 20% excess glycerol to be charged in order to cause gelation. Below that amount, the viscosity increases to a maximum and then decreases with additional cooking. This is attributed to hydrolysis and subsequent glycerol loss. This phenomenon is not found with pentaerythritol as the polyol, down to 0% excess. Bodying rates of 10% excess pentaerythritol and 20% excess glycerol alkyds are essentially equivalent.



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## Testing Flame Retardant Properties of Paints

Hochweber, M., *Swiss Verein. Lack-und Farbenchem. Rundschau* 1951, No. 15, pp 14-30.

Flame protecting paint films are most commonly applied to wood. Extensive investigations conducted by M. Hochweber proved that none of the materials and mixtures known offer absolutely perfect, or complete, flame protection (under all possible conditions) since if the maximum temperature of decomposition of the wood is exceeded, smouldering (carbonizing) of the wood induces the generation of gases and extensive structural changes.

Highly effective protection of wood against fire and flames can, however, be obtained by the application of comparatively thick films (layers of highly insulating fire-resistant substances). Substances of this type are mixtures containing 200 to 250 gr./cub. meter of unpigmented waterglass and 250 to 500 gr./cub. meter of pigmented waterglass, besides 120 to 200 gr./cub. meter of impregnating salts.

The mechanism of the fire and flame-protecting influence may base on 1. a reduction of the heat conduction properties (low heat conducting values or

the formation of gas blisters or bubbles within the heated paint films), 2. reduction of the temperatures within the wood during flame impingement by heat absorption due to distillation or decomposition and 3. dilution of combustible gases generated within the wood by inert gases of decomposition (water vapor, carbonic acid, nitrogen). A high degree of protection is offered by paint films which under the influence of heat form thick, heat-insulating, spongy layers.

Testing of flame-protecting materials in Switzerland is carried out by means of the long range tube method EMPA (a modified Truax-Harrison method) and the ordinary blower flames. Large scale tests are considered unnecessary for this purpose since the conditions of the laboratory tests applied are far in excess of those possible in large scale experiments yielding a correspondingly more reliable picture of possible effects.

## Evaluation of Grinding Equipment

Schmid, E., *Swiss Verein Lack-Farbenchem.*, 17 (1952), pp. 13-23

The author discusses the results of grinding-in tests carried out with titanium white-anatase, zinc white

white seal, lithopone, red lead, red oxide of iron, cadmium red, green oxide of chromium and bone black, which were ground with linseed oil alkyd resin and nitrocellulose lacquer in ball mills, single-and triple-roller grinding mills and dispersion mixers. Other tests were carried out with gas carbon black in linseed oil-wood oil alkyd varnish in triple roller grinding mills and ball mills, also with red oxide of iron in linseed oil alkyd varnish in single and triple roller grinding mills and ball mills.

The results showed that of four types of single roller grinding mills used only two were able to effect satisfactory fine grinding of the pigments employed. It appears that single roller types of grinding mills are not particularly suited for the fine grinding of red oxide of iron and similarly hard or harder pigments. The triple roller grinding mills cause relatively high solvent losses but is useful for the dispersion of hard pigments. Ball mills yield a very high degree of fine grinding and operate without loss of solvents. Their chief disadvantage appears to be that they are rather clumsy for grinding periods of three to four days; they are particularly suited for large grinding charges.

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This specification rosin assures you the best, most dependable results and frees you from the troubles arising from use of ordinary gum rosins.

Shipped in standard non-absorbent, leakproof metal drums, 100 lb. net weight paper bags or fluid in insulated tank cars. Grades WW through H. Write for samples and prices.

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R. Berthold reports on a method of determining the thickness of varnish and lacquer films. A radioactive beta-radiator within a container of beaker shape is placed within a certain distance from the film, and in such a manner, that the rays are directed only at the film to be measured but not against a recording tube located behind the container in such a way that the re-dispersed electrons reach the tube. The yield of dispersed electrons depends on the index number of the film and of the base material, and it is necessary, therefore, that the two materials exhibit a sufficiently large difference between their individual index numbers.

#### Testing Flame Spread Resistance

White, K. D. and Wise, J. K., U. S. Gypsum Co., Presented before ACS Meeting, Div. of Paint, Plastics, and Printing Ink Chemistry, Chicago, Ill., Sept. 6-11, 1953.

A number of test methods used for the evaluation of flame spread resistance of insulation board and acoustical units are discussed briefly. The fire test in Federal Specification SSA-118a is discussed in detail, and written requirements are reviewed in the light of later oral clarification. Both the significance and the inadequacies of these requirements are considered.

The problems involved in setting up equipment to comply with this fire test method are set forth, and a test unit is described in detail. The unique manner in which this equipment was calibrated to follow the prescribed temperature-time curve while burning the requisite quantity of fuel is also presented.

Test results are disclosed in which a comparison between the SSA-118a test and the inclined panel test described in Commercial Standard CS42-49 is made. No positive correlation was found between the two tests when open surfaced acoustical insulation board units were used.

#### Reverse Thixotropy

Harvey, E. N., Jr., Bulas, R., Fine, J., Research Laboratories, Interchemical Corp., New York 36, N. Y. Presented before ACS Meeting, Div. of Paint, Plastics, and Printing Ink Chemistry, Chicago, Ill., Sept. 6-11, 1953.

An unusual rheological property involving build-up of structure during measurement in a rotational viscometer has been observed in certain benzidine yellow dispersions. Although this new phenomenon bears some resemblance to dilatancy and also to rheopexy, it nevertheless differs from them in important respects. "Reverse thixotropy" is perhaps the most suitable designation for such materials which increase in

yield value on continued agitation.

Found originally in a textile printing ink, reverse thixotropy has since been observed in solvent flushes of benzidine yellow at certain ranges of pigment content, both with and without added resin solutions. It even occurred in a linseed oil dispersion of benzidine yellow. Some closely related formulations showed thixotropic breakdown instead of the build-up associated with reverse thixotropy. And several of the compositions showed build-up at one rate of shear and breakdown at another (higher) rate.

Thus the effect appears to be closely related to thixotropy. It probably stems from changes in the state of flocculation of the pigment particles. One explanation for such behavior would be an equilibrium between two states of flocculation, the one being characterized by a large number of

small floccules and the other by a small number of large floccules. Alternatively orientation effects might be responsible.

#### Ideal and Real Surfaces

Brill, R., Polytechnic Institute of Brooklyn, Brooklyn 2, N. Y. Presented before ACS Meeting, Div. of Paint, Plastics, and Printing Ink Chemistry, Chicago, Ill., Sept. 6-11, 1953.

Physical investigations show that it is rather difficult to prepare ideally clean surfaces, free of any substances other than the one which builds the surface. Even in a good high vacuum, ideal surfaces are unstable. Real surfaces always contain contaminations. Among these, greasy and oily substances play a rather important role. Electron diffraction investigations on polished metal surfaces are described and also experiments on the removal of impurities from these surfaces.

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**ZINC OXIDE**

**NOW AVAILABLE AT NO ADDITIONAL COST**

THE ST. JOSEPH LEAD COMPANY after several years of experimenting, has developed for its zinc oxide customers a loading method known to the trade as "unit load." This new method has been worked out successfully for both truck and carload shipments with a number of zinc oxide users who have adopted it as a standard practice for their shipments. This service is provided at no additional cost to the customer, and has resulted in a saving of up to 50% of the unloading cost of bag by bag handling. Each unit-load is compressed to about 75% of its original volume, which results in increased storage capacity. Improved handling, and greater cleanliness are other advantages gained by this method.

OUR 6-PAGE ILLUSTRATED FOLDER, CONTAINING DETAILED OPERATING DATA ON THE ST. JOE UNIT-LOAD METHOD IS YOURS FOR THE ASKING.

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## Technical Service Data Sheet

### Subject: **GRANODIZING\* FOR LONG PAINT LIFE ON STEEL**

#### **"GRANODINE" FORMS A DURABLE PAINT BOND**

Granodizing forms a crystalline, zinc phosphate coating on steel. This ACP paint-bonding process chemically changes the surface of steel into an inert non-metallic coating made up of thousands of microscopic zinc phosphate crystals.

Granodized steel thus presents a surface much more receptive to paint than untreated steel. Its crystalline structure permits a firm and durable "keying" or bonding of the paint finish. And the "Granodine" zinc phosphate coating itself is actually integral with the metal from which it is formed.

#### **"GRANODINE" CAN BE APPLIED BY DIPPING, SPRAYING OR BRUSHING**

Granodizing can be accomplished by:

- 1 Dipping the work in tanks;
- 2 Spraying the parts in a power washer; or
- 3 Brushing, spraying, or flow-coating the work with portable hand equipment.

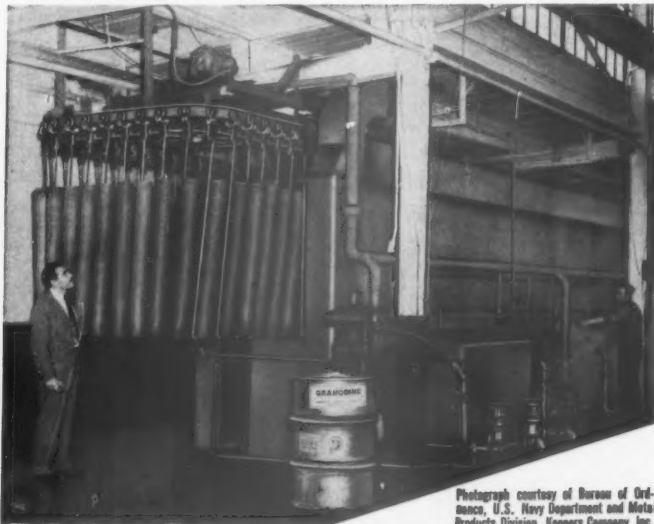
\*"GRANODINE" Trade Mark Reg. U.S. Pat. Off.

Choice of process is usually decided by such factors as the size, nature, and volume of production.

#### **"GRANODINE" STANDARD PRACTICE ON BOTH CIVILIAN AND MILITARY PRODUCTS**

Automobile bodies and sheet metal parts, refrigerators, washing machines, cabinets, etc.; projectiles, rockets, bombs, tanks, trucks, jeeps, containers for small arms, cartridge tanks, 5-gallon gasoline containers, vehicular sheet metal, steel drums and, in general, products constructed of cold-rolled steel in large and continuous production are typical of the many products whose paint finish is protected by "Granodine".

In military production, "Granodine" is used to obtain a zinc phosphate finish meeting Grade I of JAN-C-490 and equivalent requirements of other specifications.



Photograph courtesy of Bureau of Ordnance, U.S. Navy Department and Metal Products Division, Koppers Company, Inc.

Typical power spray washing machine for the automatic application of a protective phosphate coating to metal parts in preparation for painting. These 5" rocket motor tubes, as well as products made of cold rolled sheet steel, are effectively phosphate coated in such equipment.



## CALENDAR OF EVENTS



**Oct. 26-28.** 65th Annual Meeting of National Paint, Varnish and Lacquer Ass'n., Chalfonte-Haddon Hall, Atlantic City, N. J.

**Oct. 29-31.** 31st Annual Meeting of the Federation of Paint and Varnish Production Clubs and 18th Paint Industries' Show, Chalfonte-Haddon Hall, Atlantic City, N. J.

**Nov. 2-4.** 27th Fall Meeting of the American Oil Chemists Society, Sherman Hotel, Chicago, Ill.

**Nov. 30-Dec. 5.** 24th Biennial Chemical Industries Show, Commercial Museum and Convention Hall, Philadelphia, Pa.

**Dec. 6-8.** 40th Annual Meeting of the Chemical Specialties Manufacturers Assoc., Hotel Mayflower, Washington, D. C.

#### **Production Club Meetings**

**Baltimore,** 2nd Friday, Park Plaza Hotel.

**Chicago,** 1st Monday, Furniture Mart.

**C.D.I.C.,** 2nd Monday.  
 Cincinnati — Oct., Dec., Mar.,  
 May, Hotel Alms.

Dayton — Nov., Feb., April,  
 Suttmillers.

Indianapolis — Sept., Claypoll Hotel.

Columbus — Jan., June, Fort Hayes Hotel.

**Cleveland,** 3rd Friday, Harvey Restaurant.

**Dallas,** 2nd Thursday, No Fixed Place.

**Detroit,** 4th Tuesday, Rackham Building.

**Golden Gate,** Last Monday, El Jardin Restaurant, San Francisco.

**Houston,** 2nd Tuesday, Seven Seas Restaurant.

**Kansas City,** 2nd Wednesday, Pickwick Hotel.

**Los Angeles,** 2nd Wednesday, Scully's Cafe.

**Louisville,** 3rd Wednesday, Seelbach Hotel.

**Montreal,** 1st Wednesday, Queen's Hotel.

**New England,** 3rd Thursday, Puritan Hotel, Boston.

**New York,** 1st Thursday, Brass Rail, 100 Park Ave.

**Northwestern,** 1st Friday, St. Paul Town and Country Club.

**Pacific Northwest,** Annual Meetings only.

**Philadelphia,** 3rd Wednesday, Engineer's Club.

**Pittsburgh,** 1st Monday, Fort Pitt Hotel.

**St. Louis,** 3rd Tuesday, Forest Park Hotel.

**Southern,** Annual Meetings Only.

**Toronto,** 3rd Monday, Diana Sweets, Ltd.

**Western New York,** 1st Monday, 40-8 Club, Buffalo.

## PROCUREMENT

(From page 62)

data for costs applicable to the terminated contracts. Termination claims should be filed on the proper forms with the contracting officer or higher tier contractor, who is responsible for subcontractors' claims. The termination will then be reviewed by the defense agency holding the contract and will be audited where necessary. It is readily apparent how important it is that qualified personnel be designated for this specialized job, the cost of which is an allowable termination cost.

Much can be done in advance of termination, particularly regarding a review of the cost accounting records, to see that the applicable costs can be readily ascertained. Formulae costs, batch cards, and any other paint production records may be utilized to render the necessary cost data. Costs cannot be compiled unless recorded concurrent with production. This universal failing caused much trouble in the post World War II period. Paint manufacturers with government contracts or subcontracts who do not take the necessary precautions will encounter great difficulties in submitting and processing termination claims. Irreparable financial harm may very readily result from the delay or inability to recover all costs on terminated contracts or subcontracts.

### Wider Color Range of Automobile Finishes, Predicts Paint Expert

A prediction that bolder use of color will characterize automobiles of the future was made recently by Don A. Seeley, automotive division manager of the Martin-Senour Paint Company, Chicago.

"With the development of paint finishes that will retain their original bright colors," Mr. Seeley said, "the automobile owner is demanding a wider range of tints and tones in keeping with the colors ideas he is using in his home and clothing."

Mr. Seeley noted that as late as 1951 more than 90 per cent of all cars come in the basic black, green, blue or grey. Black now attracts only 12 per cent of new car buyers, he said.

## A New Wrinkle in Alkyd Flat Formulation!

**Crownoil's C-2000 and C-2020 enables you to *reduce costs* and *improve* your product at the same time.**

### C-2000-ODORLESS

Solids — 25%  
Solvent — Odorless  
Color — 7-10  
Rosin Modification — Present  
Color Retention — Excellent  
Acid No. on Solids — 10 Maximum

C-2000 was developed exclusively for *odorless* alkyd flats. It produces paints outstanding for their ease of application, washability, uniformity, stability, and lack of odor.

PRICE 12¾c IN DRUMS

For a competitive line of *alkyd* flat paints with all of the advantages an alkyd vehicle can offer, at a cost comparable with limed oils.

### C-2020-MINERAL SPIRITS

Solids — 25%  
Solvent — Mineral Spirits  
Color — 7-10  
Rosin Modification — Present  
Color Retention — Excellent  
Acid No. on Solids — 10 Maximum

PRICE 11c IN DRUMS

For higher quality and lower costs,  
look at Crownoil's entire line.

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## NEWS DIGEST

### Water Dispersed Paint Systems To Be Discussed at Paint Meeting

A panel will discuss the latest developments in new binders for water thinned paints as well as new ideas regarding pigmentation, dispensing agents, methods of dispersion and consumer reactions, on Thursday afternoon, October 29, during the Annual Meeting of the Federation of Paint and Varnish Production Clubs in Atlantic City, N.J.

William J. Greco, assistant technical director of the Socony Paint Products Company, is chairman and organizer of the panel discussion.

Individual members of the panel will discuss the following subjects:

**Consumer Reactions**, Herbert E. Hillman, technical director, Eagle Paint & Varnish Corporation, N.Y.C.

**Manufacture**, Edward C. Scholl, president, Esco Laboratories, Hasbrouck Heights, N.J.

**Pigment Dispersions**, Walter H. Hoback, manager—surface coating section, Calco Chemical Division, Bound Brook, N.J.

**New Acrylic Resin Dispersions**, N. J. Timmons, assistant general sales manager, Rohm and Haas Co., Philadelphia, Pa.

**Binders**, Henry F. Payne, technical editor, American Cyanamid Co., New York, N.Y.

#### Edward C. Scholl

*President, Esco Laboratories*

Graduated from Abright College in Reading, Pennsylvania in 1936 with a Bachelor of Science degree in Chemistry. Shortly after graduation he joined the Research Laboratories of Congoleum-Nairn, Inc., of Kearny, N.J. In 1944 he left Congoleum-Nairn, Inc. to assume the duties of Chief Chemist of The Pantasote Co., Inc., of Passaic, New Jersey. In 1948 he became Technical Director of The Muralo Co., Inc., of Staten Island, N.Y. In this capacity he was responsible for the development of one of the first commercially produced latex paints in the country.

In 1952 he formed his own company, Esco Laboratories, in Hasbrouck Heights, N.J. This organization serves as consultants to the protective coatings industry specializing in latex coatings for all types of applications. He is the author of a series of articles which appeared in the American Paint Journal in 1953 entitled "Latex Paints—Their Formulation and Manufacture". He has lectured to Production Clubs and painter organizations on the subject of latex paints. He is active in civic affairs and is at present serving as president of the Board of Education in Hasbrouck Heights.

#### Herbert E. Hillman

*Technical Director  
Eagle Paint and Varnish Corporation*

Herbert E. Hillman is, at present, Technical Director of the Eagle Paint & Varnish Corporation and its affiliate the F. O. Pierce Company. He has been with the Eagle Paint & Varnish Corporation since his introduction to the industry in 1935.

Mr. Hillman has held the various elective offices of treasurer, secretary, vice-president, and in 1952, was president of the New York Paint and Varnish Production Club. He is a past chairman of Subcommittee 53 of the New York Club, which has been studying pigment dispersion. He presented two of the prize winning committee papers at Federation conventions. He has also been a member of several other technical and administrative committees.

He has authored several articles on paint in various periodicals as well as the section on "Interior



Panel on Water Dispersed Paints, top row, left to right: Edward C. Scholl, Herbert E. Hillman, N. J. Timmons. Bottom row: Henry F. Payne, William J. Greco, Walter H. Hoback.

Paint" for the Encyclopedia of Chemical Technology.

Mr. Hillman is a graduate of New York University, and, in addition to his production club activities, is a fellow of the American Institute of Chemists.

#### Henry F. Payne

*Technical Editor  
American Cyanamid Co.*

Henry F. Payne is a graduate of Pratt Institute and the Polytechnic Institute of Brooklyn and, since 1945, he has been Adjunct Professor in charge of the courses on Organic Coating Technology at Brooklyn Poly.

From 1922 until 1937 he was engaged in manufacturing paint, varnish and lacquer in New Jersey. In 1937 he was placed in charge of the resin evaluation group in the Stamford Laboratories of the American Cyanamid Company. For the past six years he has been in Cyanamid's New York office in sales promotion and technical writing. He is Editor of Cyanamid's well known publication, "For Instance." He is author of a number of scientific papers, and he is preparing a textbook on Organic Coating Technology which he hopes will be available this fall. He has originated, invented and devised many methods of test such as the Payne Dip Coater, Payne Permeability Cup, etc.

He has been Secretary-Treasurer of the Paint, Varnish & Plastics Division of the American Chemical Society for the years 1950, 1951 and 1952. He is a Fellow of the American Institute of Chemists and a member of Tau Beta Pi as well as other honorary societies. He has been an active worker in Federation affairs and as both a Class A & B member of The New York Paint & Varnish Production Club. His outstanding work for the club as a member of its Technical Committee, Mattiello Memorial Committee and other activities coupled with his contributions to the Protective Coatings Industry earned for him the coveted PaVaC Honor Award of the New York Paint & Varnish Production Club.

#### William J. Greco

*Assistant Technical Director  
Socony Paint Products Co.*

William J. Greco attended the Polytechnic Institute of Brooklyn, and graduated in 1925 with the degree of Chemical Engineer.

After graduation, he was employed by the Dyestuff Division of the E. I. DuPont de Nemours and Company at Deepwater, New Jersey where he served as research chemist from 1926 to 1927. From 1927 to 1930 he worked as Research Engineer on coal tars for the Barrett Company. In April of 1930 he joined the Standard Oil Co. of New York in their Petroleum Division. One year later, he was transferred to the Paint Division where he is at the present time holding the position of Assistant Technical Director of the Socony Paint Products Company at Metuchen, New Jersey.

He has been actively engaged in the Paint and Varnish Industry since 1930 and has been noted for his extremely energetic activities in The New York Paint and Varnish Production Club ever since he was a member. He has served on the following committees: Executive, Nominating, Technical, Program, Resolutions, Mattiello Memorial, etc. He was elected Treasurer in '45, Secretary in '46, Vice President '47 and President in '48. He was elected Club Representative to the Federation for 1952 and 1953 and re-elected for the years 1954 and 1955. For his contributions to the Club and the paint industry he was given the Pa Va C Honor Award, a much coveted honor of the club.

The inception and establishing of the Mattiello Memorial Library at the Polytechnic Institute and its renowned collection of books on protective coatings was the result of his efforts.

In Federation Activities he has served in the Council, Technical Information Committee, Liaison Council, Chairman of the Registration Committee at the 1949 convention, Program Committee, Chairman of the Floor Committee, etc.

He is a Fellow in the American Institute of Chemists and a member of the New York State Society of Professional Engineers since 1934. He has written many technical articles, and his review on Metal Primers appeared in the March 1944 Official Digest.

#### Walter H. Hoback

*Manager Surface Coating Section  
Calco Chemical Division*

Walter H. Hoback graduated from Roanoke College with an A.B. in 1929, and from Lehigh University at Bethlehem, Pennsylvania, with an M.S. in 1931.

Mr. Hoback's background has been confined almost entirely to the paint industry. From 1929 to 1931 he held the Archer-Daniels-Midland Company fellowship in the Research Institute on Drying Oils conducted by Dr. J. S. Long at Lehigh University where he carried on fundamental research in oil chemistry, including fractionation of fatty acids and preparation of synthetic oils. From 1931 to 1934, he was employed as a chemist with Pratt & Lambert, Inc., Buffalo, New York, where he carried on work on vehicle and resin research and was one of the early workers on the preparation and adaptation of alkyd resins to practical paint usage and on pure and modified phenolic resins. From 1934 to 1941, he was employed as a chemist, and later a director of the Technical Service Laboratory of Titanium Pigment Corporation.

He was engaged in early work on the application of titanium pigments to house paints and exterior enamels, and first promoted the special primer two-coat house paint system; house paint tint base, lead titanate, and rutile titanium pigments were also included in his work, as well as the development of the one-coat house paint. From 1941 to 1946, he was employed by Devco & Reynolds Company in Louisville, Kentucky, as section manager of the Trade Sales Laboratory carrying on work on exterior finishes including war work, such as camouflage and other coatings, and he helped write Federal Specifications TT-P-25 for exterior primer. He directed the development of one-coat house paint, and research in pigment dispersion. Since 1946, Mr. Hoback has been with the Pigment Department of American Cyanamid Company, Calco Chemical Division, Bound Brook, New Jersey, where he is manager of the Surface Coating Section of the Pigment Technical Service Laboratory.

### Witco Chemical Co. Purchases Plant Facilities in Los Angeles

The Witco Chemical Company, New York, has purchased plant facilities in the Los Angeles, Calif., area and plans to install manufacturing equipment in the near future.

Expansion of Witco's production facilities was undertaken to supply the Pacific Coast area locally instead of meeting requirements by shipment from distant plants.

## PRODUCTION CLUBS

(From page 70)

Harlan Bogie reporting for the Educational Committee announced that a seminar course in "Modern Developments in the Paint Industry" will be given at the Illinois Institute of Technology.

Mr. L. E. Ludwig, Chairman of the Nominating Committee presented the following slate of officers for the coming year: Robert J. Gnaedinger, President; Warren C. Ashley, Vice-President; Robert R. Bruhn, Secretary; Sidney Danoff, Treasurer; E. H. Marberg, Sergeant-at-Arms, and Thomas F. Byron for Council Representative.

The address of the evening, "Statistical Methods" was presented by Mr. W. L. Core, E. I. DuPont De Nemours, Inc. The speaker related the use of statistical methods to research.

Second meeting of the year was held October 5. S. J. Fecht of S. J. Fecht & Associates, presented a talk on "The Easy Way Out" on a "Scientific Way of Cost Reduction."

### Detroit

First meeting of the coming year was held September 22, at the Rackham Building, Detroit. Payton Wheeler, Director of Specialty Research at the Edgar Brothers Company, addressed the members on Aluminum Silicates. He showed slides covering the background of aluminum silicates and their uses in various type products.

### C-D-I-C

The 33rd meeting of was held September 14, at the Marott Hotel, Indianapolis, Ind.

Speaker of the evening was Fred Petke who presented a preview of the Club paper to be presented at the Paint Convention, titled "Conquering Fire."

### Southern

The Miami Section of the Southern Paint and Varnish Production Club held its regular meeting September 28, in Miami, Fla.

Joseph P. Davis, Chemical Products Division of the Goodyear Tire & Rubber Company, gave a talk on "The Formulation and Manufacture of Interior Flat Latex Emulsion Wall Paints."

### Baltimore

Officers for the coming year took office at the September meeting. President elect is Bill Wright, Secretary, Jim Hinz; and treasurer, John Timmons.

Guest speaker of the evening was Mr. Killey of the DuPont Company, Pigment Division, who presented a paper on the effects of various toning

colors added to white enamels as regards reflectance and opacity.

### Louisville

A paper on "Half Second Cellulose Acetate Butyrate 11," was presented by Fred M. Ball, Eastman Chemical Products, at the September 16, meeting, held at the Seelbach Hotel, Louisville, Ky.

C. M. Jackson of the Technical Committee reported that the work on the Club paper had been completed.

### Northwestern

J. W. Close of the United Wallpaper Company, spoke on "Colors for Water Systems" at the club's September 11th, meeting.

Various pigments used were discussed from a standpoint of their suitability in water systems. Also discussed were methods used to process them with binders from various stages such as dry color, filterpress cake and dispersed colors. In his closing remarks, Mr. Close stated, that much work is being done on the newer emul-

sions such as poly vinyl acetate and acrylic and that the use of water system primer sealers is becoming widespread as is the use of latex type paints for exterior stucco and masonry finishes.

### Los Angeles

The regular monthly meeting was held September 9, at Scully's Restaurant, Los Angeles.

Officers nominated for the coming year are: G. W. Venatta, president; W. Vern Barrett, vice-president; Joe L. Mattson, treasurer, and I. D. J. Heisler, secretary.

Dr. Weinants and Carter Sexton of Occidental College then gave a resume of their activities so far on the problem of Driers. Results from this paper will be published in the near future.

Mr. Blackington concluded the meeting program with a short discussion on the Color Computer. He said that something may be developed in the near future for mechanical calculations correcting batches to bring them to color.

## WHY YOU CAN'T GO WRONG WHEN YOU USE SUN SPIRITS

Sun Spirits is a carefully balanced product. It has good wetting-out power. Volatility is controlled to insure a rate of drying that is neither too fast nor too slow. Purity is constantly checked and rechecked to make certain of a reliable, high-quality

product. In new formulas, as well as old, and in experimenting with new materials, you can rely on the uniformity and quality of Sun Spirits. For full information, or the help of a representative, get in touch with the nearest Sun Oil Company Office.



The owner of this plant was using a solvent that often gave his varnishes a dark cast or caused them to gum. Changing to Sun Spirits solved the problem for him. Largely

due to the greater uniformity of this "Job Proved" product, his varnishes have gained in reputation in the 11 years that have passed since adopting Sun Spirits.

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## FINE DRY COLORS

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## Try Defoamer ED

Defoamer ED licks a variety of foam problems. Here's one example: the lifetime of a single bubble on the surface of a paint containing 0.3% Defoamer ED was found to be less than one second. A number of com-

mercial defoamers in the same paint gave bubble lifetimes averaging between two and three minutes. Satisfactory paints have been prepared with a 0.1% concentration of Defoamer ED.

Defoamer ED is a stable liquid mixture of high molecular weight esters. It is now available in commercial quantities.

Write for technical data and samples

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## TECHNICAL Bulletins

### STEARATES CHART

Chart, describing its complete line of stearates, their properties and applications, has been prepared by the Metasap Chemical Company, Harrison, N. J. The chart, designed to be hung in an office or plant, may be obtained without cost by writing the firm in care of Department 72.

### BARREL LOGISTICS

"The Logistics of Barrels," an illustrated 8-page booklet offered without cost by the Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 3, Ohio, details many cost-cutting methods handling of barrels and barrel "shapes" by power industrial trucks.

Literature tells how any cylindrical-shaped container can be assembled on pallets or skids for effective handling.

Advantages claimed for load unit handling of barrels include: greater speed of transportation, multiplied use of floor and vertical areas; increased safety for operators; reduced physical effort; increased operating efficiency.

### ETHYLENE AMINES

Bulletin on the ethylene amines—ethylene diamine, diethylene triamine, triethylene tetramine, and tetraethylene pentamine has just been released by Carbide and Carbon Chemicals Company, a Division of Union Carbide and Carbon Corporation.

Physical, chemical, and physiological properties; specifications and shipping data; and application data are included.

Ethylene amines are used in the synthesis of corrosion inhibitors, asphalt additives, resins, wetting agents, water softeners, and fungicides. In addition, these amines and their derivatives are useful in the rubber, metal, surface coating, photographic-developing, and sugar industries.

Bulletin (F-8163) is available, without charge, from Carbide and Carbon Chemicals Company, 30 East 42nd St., New York 17, N. Y.

## ALDEHYDES

Thirty-six page book describing aldehydes, a highly reactive family of chemicals used in many branches of the manufacturing and process industries, has just been published by Carbide and Carbon Chemicals Co., a Division of Union Carbide and Carbon Corporation. This book discusses in detail the fourteen aldehydes that are sold in commercial quantities by the Company. Information on other aldehydes that are available in research quantities is also included.

The book has been prepared as a handy reference for people in the chemical industry: chemists, engineers, purchasing agents, and production and laboratory workers.

Aldehydes find applications in the production of rubber, protective coatings, textiles, etc. Copies of this book "Aldehydes" (F-5278), are available from the Company at 30 East 42nd St., New York 17, N. Y.

## SILICONE PRODUCTS

Booklet, entitled, "Tall Tales and Fabulous Facts," has been published by the Dow Corning Corporation, Midland, Mich., on its 10th Anniversary. Combining mirth and facts, the publication lists several tall tales that have become part of American Folklore (i.e. Paul Bunyard stories) along with brief sketches of some of the uses of Dow Corning products.

## PLANT SAFETY

"Working Together for Safety" is the title of the National Safety Council's new employee rules manual. The 32-page booklet contains instructions in safe work habits applicable to employees in most plants.

Practical experiences of workers, supervisors and safety specialists have established the safe practices covered, beginning with a list of general safety regulations and continuing with special sections on machine operation, hand tools, protective clothing, fire prevention, materials handling and many related topics.

For a free sample copy and prices for quantities write the Council at 425 North Michigan Ave., Chicago 11, Ill.



# All through the Night WEATHER-OMETERS

like this are operating unattended in hundreds of industrial laboratories to determine the resistance to rain, heat, sunlight, and thermal shock of a wide range of materials intended for outdoor use.

A few days' testing in the Weather-Ometer is equivalent to months of exposure in actual use.

The operation of the Weather-Ometer is fully automatic. After setting exposure cycles by placing the proper cam on the cycle timer unit, the machine may safely be left in continuous operation over night without attention other than to replace carbon electrodes.

The Carbon Arc, the closest known duplicate of sunlight both as to intensity and spectral distribution, is used in all Atlas Weather-Ometers as the source of radiation. Water spray, thermal shock, temperature control, and light exposure periods are all regulated automatically according to test requirements.

Both original research testing in designing new types of products and daily testing for quality control in production are performed by the Weather-Ometer with equal assurance of positive dependable results.

### Types of products tested in Weather-Ometers include: —

Aeronautical parts and instruments.	Dyestuffs, Chemicals and Plastics.
Automotive parts and finishes.	Rubber and related products.
Bitumens and related products, including roofing, paints, siding, etc.	Textiles, clothing and canvas goods.
	Utilities, wire and cable

### A few well-known companies using Weather-Ometers are: —

American Steel & Wire Co.	American Paint & Chemical Co.
Kennicott Wire & Cable Co.	American Cyanamid Co.
U. S. Finishing Co.	Johns-Manville Corp.
National Bureau of Standards	Calorex Corp.
U. S. Naval Clothing Dept.	Fisher Body Corp.
Goodyear Tire & Rubber Co.	Boeing Aircraft Corp.
National Lead Co.	Fairchild Engine & Aircraft Co.
Sears, Roebuck & Co.	International Harvester Co.

and hundreds of other industrial companies.

**Write for bulletin giving complete engineering data on the operation of the Weather-Ometer.**

**Your weathering test problems will receive personal attention of our engineers.**

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MANUFACTURERS OF ACCELERATED TESTING EQUIPMENT FOR OVER A QUARTER OF A CENTURY



#### **POLYVINYL ACETATE**

Bulletin on Colton VINAC Polyvinyl Acetate Solid Resin has just been issued by the Colton Chemical Company, 1545 East 18th Street, Cleveland 14, Ohio.

Publication describes the properties, uses and applications of Colton VINAC Beads now available both as regular solvent soluble types as well as alkaline soluble types in viscosities ranging from 3 to 1000. VINAC Beads are used in the adhesive, paper, textile and plastic industries to produce adhesives, coatings, sizings and special decorative finishes.

Copies of the bulletin may be obtained by writing the firm.

#### **PURECAL IN PAINTS**

Booklet titled, "Purecal in Paints," has been published by the Wyandotte Chemicals Corporation, Wyandotte, Mich. Purecal, a white pigment extender, is Wyandotte's brand of precipitated calcium carbonate.

Publication discusses such things as the relationship of particle size to hiding power, how extenders influence colors, how a white-white extender saves raw material expense and many other topics of interest to paint formulators.

Booklet may be obtained from any Wyandotte district offices or by writing company at Wyandotte, Mich., in care of Dept. N.R.

#### **IMMERSION HEATER**

Electric immersion heater catalog, featuring a section of application data for calculating the power requirements for heating processing tanks, has been made available by the Cleveland Process Co., 7016 Euclid Ave., Cleveland 3, Ohio.

According to publication, data simplifies the problem of estimating heat losses, determining the correct KW needed and selecting proper heater size for tank capacity.

Catalog describes two types of electric immersion heaters manufactured by Cleveland Process Co.

#### **CELLULOSE ACETATE**

New edition of a basic technical booklet about the properties and uses of its cellulose acetate is now available from the Hercules Powder Company, Wilmington, Del.

In the section devoted to discussions of properties, the material has been revised to include data on the many new solvents, plasticizers and resins which are used with cellulose acetate.

The sections on uses includes considerable new information about acetate specialty lacquers including starting formulas for clear and pigmented outdoor lacquers, heat-resistant paper lacquer and plastic coatings.

Other information in the book also has been revised and brought up to date.

#### **DISSOLVING EQUIPMENT**

Catalog covering their enlarged line of "Ultrafast" dissolving equipment has been issued by the Cowles Company, Inc., Cayuga, N. Y.

According to 16-page catalog, Cowles equipment utilizes a patented high speed impeller that makes it possible for manufacturers to cut dissolving, dispersing and mixing operations up to 97 per cent in some operations.

Catalog may be obtained upon request.

#### **RADIOISOTOPES**

Development, applications and instrumentation of the new microcurie radioisotopes is the subject of a bulletin, "Fisher Radioactive Reagents," just released by the Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

Radioisotopes are carbon-14 tagged compounds that require no A.E.C. authorization for use.

## **SPIRIT and OIL SOLUBLE GUMS and RESINS**

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SINGAPORE DAMAR  
SIAM DAMAR  
PALE EAST INDIA  
BLACK EAST INDIA  
BATU EAST INDIA  
PONTIANAK

MANILA COPAL  
CONGO COPAL  
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PROCESSED NATURAL RESINS  
DEWAXED DAMAR

## **O. G. INNES CORPORATION**

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#### CHEMICAL CHART

New wall chart of industrial chemicals derived from oils and fats has been issued by the Chemicals Products Division of the Archer-Daniels-Midland Company, 2191 West 110th St., Cleveland 2, Ohio.

This 17" by 17" reference sheet charts the composition and specifications of all the standard chemicals produced by ADM's Chemical Products Division: 7 Adol Fatty Alcohols, 10 Hydrofol Glycerides, 14 Hydrofol Fatty Acids, and 9 ADM Sperm Oil Products.

Also shown on chart in alphabetical sequence are common uses for the firm's fat chemicals. The chart is available at no cost to chemical processors, industrial companies and research laboratories.

#### DUST ELIMINATORS

Two "Centri-Merge" vertical rotor wet type dust and fume eliminators are described in Bulletin Vu-8-53, issued by Schmieg Industries, Inc., Detroit 2, Mich.

One rotor unit is for wet collection and elimination only, while the other is a combination primary dry and secondary wet collection and elimination unit.

Both units combine the cyclonic principle of dust separation and positive high pressure water action, to wash impurities from the air in a rotating torrent of water. Capacities range from 500 to 50,000 C.F.M.

#### GRAVITY CONVEYOR

Bulletin with photos, specifications and prices of "Rapistan" aluminum frame-steel wheel gravity conveyor has just been published by the Rapids-Standard Company, 342 Rapistan Building, Dept. A-S, Grand Rapids 2, Mich.

Publication lists load capacities, weight, and construction features of the complete range of sizes available in straight and curve sections.

Free copies of bulletin may be had by writing firm.

#### STORAGE EQUIPMENT

Catalog featuring steel shelving, lockers as well as other storage and maintenance equipment for industrial and institutional use has been published by the Precision Equipment Co., 3712 N. Milwaukee Ave., Chicago 41.

#### LABORATORY SERVICE

Detailed information describing the laboratory services offered to those interested in firm's line of protective coating products, industrial chemicals, and other products is contained in brochure.

Well illustrated with photographs of several individual laboratories and equipment, literature describes various tests which can be conducted and products which can be analyzed.

Copies of brochure, entitled "Eastman Service," are available upon request to Eastman Chemical Products, Inc., Kingsport, Tennessee.

#### SYNTHETIC RUBBERS

Typical properties, uses and compounding of "Thiokol" synthetic rubbers are described briefly in bulletin issued by the Thiokol Chemical Corporation. Information is designed to aid manufacturers in the selection of special-purpose elastomers to withstand oils and solvents, the effects of aging, and extreme low temperatures.

Applications of synthetic rubbers in the coating, printing and other industries are described. Bulletin may be obtained by writing the firm at 780 N. Clinton Ave., Trenton 7, N. J.

### *Memo to: Technical Directors, Chemists, Production Men and Purchasing Agents.*

*When at Atlantic City for the 1953  
Paint Industries Show, October 27th--  
October 31st, visit Booth No. 58 for in-  
formation on:*

- **YELKIN TTS** --- The Standardized Lecithin
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## PRODUCT RESEARCH

Brochure on Product Research (bulletin A) dealing with the development of a new product, improvement of an established product or the method of producing it, discovering new uses for it or a better raw material for it, is available by writing to Arthur D. Little, Inc., 30 Memorial Drive, Cambridge, Mass.

## CIRCULATION HEATERS

Typical applications and operating characteristics of Chromalox electric circulation heaters are featured in new bulletin by Edwin L. Wiegand Company.

According to folder, firm's line of automatic circulation heaters give efficient automatically controlled heating of water, steam, oil, heat transfer media, air and other gases for industrial processes.

Publications lists photos and drawings showing methods of installation. For copy of Bulletin 701 write to Edwin L. Wiegand Co., 7632 Thomas Blvd., Pittsburgh 8, Pa.

## LIGHTING FIXTURES

Four-page bulletin, SEC-K, describes components, performance data, and methods of installing or relamping for any of the firm's new EV series lighting fixtures, said to be explosion-proof and weather resistant.

The new series has been designed for use at locations made hazardous by concentrations of ethyl ether vapors or gasoline, petroleum, naphtha, alcohols, acetone, lacquer solvent vapors, and natural gas.

Write Crouse-Hinds Company, Wolf and Seventh North Sts., Syracuse 10, N. Y.

## FATTY ALCOHOLS

Literature, which tell how to use Cachalot brand cetyl, eleyl, and stearyl alcohols in various applications, is available to chemists, production managers, and purchasing agents.

Entitled, "Possibilities with Fatty Acids Alcohols," booklet is available from M. Michel and Company, Inc., 90 Broad St., New York 4, N. Y.

## ELECTRIC OVENS

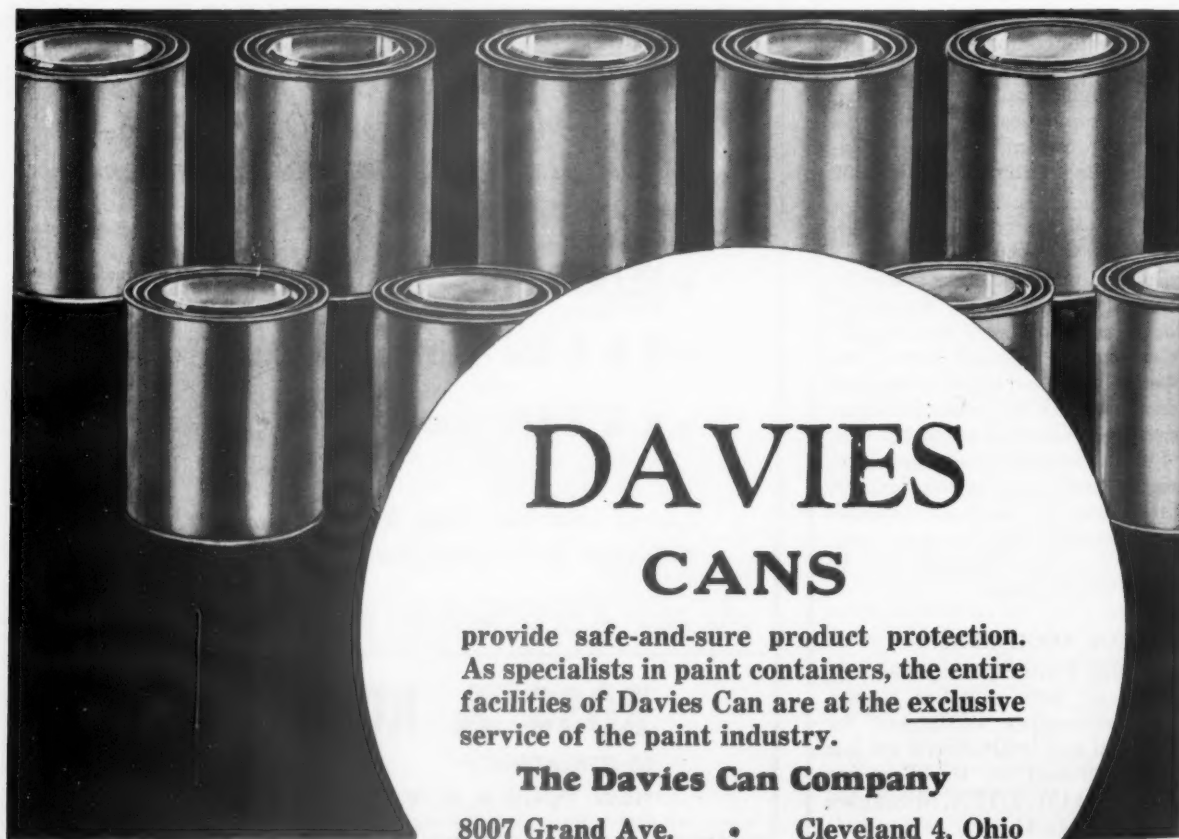
Catalog on electric ovens, furnaces, glass annealing ovens, utility water baths, humidity cabinet, and incubators, has just been published by the Blue M Electric Company, 306-308 W. 69th St., Chicago 21, Ill.

Forty-page publication is designed for men in analytical and general laboratories, pilot plants and in production departments. Units may be used in the chemical, medical, plastics, and rubber industries, among others, for drying, baking, preheating, conditioning, tempering, etc.

Copies available upon request.

## RUBBER CHEMICALS

Thirty-two page catalog on rubber chemicals has been released by Sharples Chemicals, Inc., 123 South Broad St., Philadelphia 9, Pa. The firm's vulcanization accelerators, vulcanizing agents and intermediates for rubber chemicals are described along with typical compounding characteristics of the accelerators.



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#### ASTM RESEARCH

Reprinted copies of the "Review of ASTM Research", as published in the December 1952, and January and February 1953, ASTM Bulletins are now available.

This material, prepared by the American Society for Testing Material Administrative Committee on Research, summarized the work of the various technical committees of the Society as of May 1953.

Copies of 22-page pamphlet may be obtained without charge at ASTM headquarters, 1916 Race St., Philadelphia 3, Pa.

#### FORK LIFT TRUCK

Six-page bulletin describing and illustrating its "Gas-O-Matic" fork lift truck has been published by the Baker-Raulang Company, Industrial Truck Division, 1230 West 80th St., Cleveland 2, Ohio.

Firm's "Gas-O-Matic" truck uses no clutch, transmission, controller or resistors. Publication explains principle of system with drawings and also illustrates truck's major design features. Also included in bulletin are dimensions and specifications.

#### STANDARD COLOR CHART

The Committee of Color Standardizing (a member of the German Standardization Committee), in collaboration with the Color Research Laboratory of the Board of Testing Materials at Berlin-Dahlem, has laid the experimental and technical foundation to a new Standard Color Chart that in the future will become the uniform basis of reference for specifying colors in standardization work.

The leading idea of the new color system is the psychological equidistance and equivalency of the colors selected.

Further information on the scientific basis, scope, and applicability of the new chart may be found in the papers of the journal "Die Farbe" (i.e. "Color"; publisher Verlag fur angewandte Wissenschaften, Wiesbaden, Germany). The new Color Chart is treated in a special issue (Vol. 1, No. 3/6; 1952/53). Research was under the direction of Prof. Dr. Manfred Richter.

#### PALLET RACKS

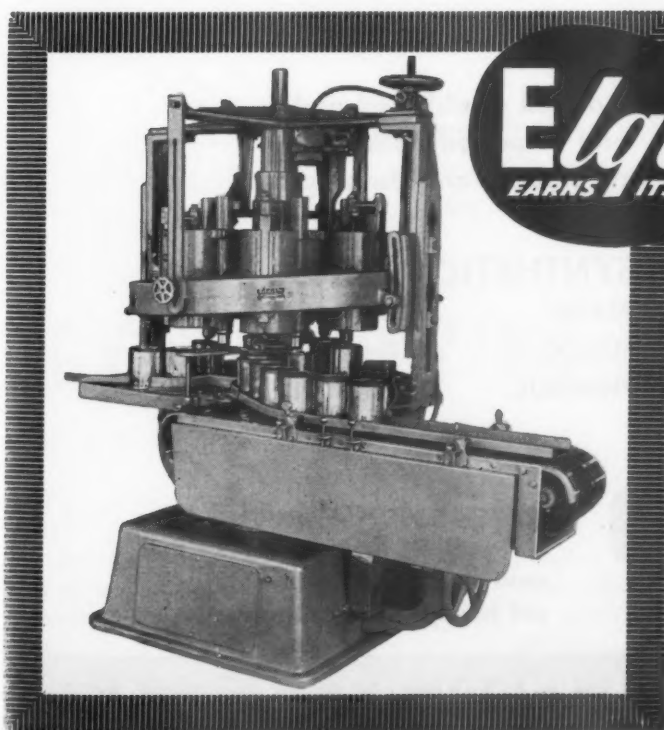
Illustrated folder showing construction and assembly details of American Pallet Racks is now available.

Folder contains load capacity chart, accessories and optional construction features, plus photographs of installations. The American Pallet Rack, which can be erected and dismantled without bolting or welding, is manufactured by the American Metal Product Co., 5959 Linsdale Ave., Detroit 4, Mich.

#### CLASSIFIED ADVERTISEMENTS

Rates: \$.20 per word, except those seeking employment, for which rate is \$.10 per word. Minimum: ten words. Address all replies to Box Number, c/o Paint and Varnish Production, 855 Avenue of the Americas, New York 1, New York.

**Technical Director**—To plan, direct and control lab. for paint specialty company located in Eastern Penna., manufacturing caulking, putty, roof coatings, adhesives, etc. Require man with experience and real knowledge in field, ability to organize work, direct men, and make or supervise field contacts. Give complete information. Box 1010.



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